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POLLUTION OF LAKE ERIE AND ITS TRIBUTARIES, NEW YORK. PROCEEDINGS OF CONFERENCE SESSION (3rd) HELD AT BUFFALO, NEW YORK ON MARCH 22, 1967. VOLUME II

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CONFERENCE PROCEEDINGS

POLLUTION OF LAKE ERIE AND ITS TRIBUTARIES

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Federal Water Pollution Control Administration U. S. Department of the Interior CLEAN WATER

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APPENDIX II

SUMMARY OF PROGRESS IN REDUCING POLLUTION OF LAKE ERIE RESULTING FROM DISPOSAL OF SOLID WASTES ON BANK OF OR INTO ITS TRIBUTARIES

(Detailed reports, correspondence and photos on file in General Engineering Unit, Ohio Department of Health.)

Columbus, Ohio
January 30, 1967

(1) Willshire Dump (Van Wert County on St. Marys River, tributary to Maumee). Privately owned by Harold Dellinger, Jr. Dumping of inorganics along banks of St. Marys River. Meeting of County Commissioners, County Engineers, Health Commissioners and Township Trustees from Van Wert and Mercer Counties held September 15, 1966, to consider establishment of acceptable disposal facilities.

ACTION - December 1966 - owner reports site has been fenced and salvables are being removed.

(2) Weather Seal Corporation (Putnam County, Blanchard River, tributary to Auglaize River, tributary to Lake Erie.) Inorganic solid wastes (scrap wood and paper) had been dumped along banks of Blanchard River. Public

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gathering scraps and also dumping can.

ACTION - Fence and gate installed. Industrial combustibles will be burned in open on same site. This is temporary and will not be acceptable in future.

(3) Pemberville (Wood County, Freedom Township, Portage River). Dump along west bank of Portage River was operated by Freedom Township Trustees.

ACTION - Channel of Portage River was diverted away from dump eliminating pollution of Lake Erie. Dump to be converted to sanitary landfill.

(4) Independence (Cuyahoga County, Cuyahoga River). Privately owned dump along Cuyahoga River served the city of Independence. Closed in June, 1966. Apparently no putrescible material had been dumped prior to or after closing dump.

ACTION - Reinspection on November 15, 1966, indicated dump was still closed and no potential pollution of the Cuyahoga River was in evidence.

(5) Cleveland (East end of Burke Lakefront Airport) In early 1966, dike had been constructed of impervious material out in Lake Erie to permit the construction of a landfill to reclaim a small part of the lake to be used for airport runway extension. Photos taken August 25,

1966, indicate a 5 foot opening in dike.

ACTION - Correspondence from this office to Cleveland Health Department and City Service Director resulted in closing of the dike and operation of landfill so as to eliminate possibility of any solid wastes entering Lake Erie.

(6) Eastlake (Lake County, also known as De Milta Dump. Chagrin River). In August, 1966, Disposal of solid wastes have been such as to pose a potential pollution source for Lake Erie. Diking of area to an elevation 5 feet above high water was recommended.

ACTION - Diking was started but not completed, November 15, 1966. Mayor Brown of Eastlake in a letter to Lake County Health Commissioner, November 10, 1966, indicated engineering plans were being prepared for altering course of Chagrin River and establishing a proper sanitary landfill for the area, including the Cleveland Electric Illuminating Company.

(7) Willoughby (Lake County, Chagrin River) The disposal area was along the banks of and into the Chagrin River. Disposal area near center of city.

ACTION - Following letter from this department, city obtained necessary equipment to remove wastes from river and its banks and deposit it above high water level. Some improvement still needed.

(8) Kirkland Township (Quigley Dump) (Chagrin River). In August, 1966, disposal site was over a small tributary of Chagrin River. Tile had been installed in the water course and was discharging a potent effluent to the river.

ACTION - Through efforts of this department and the Lake County Health Department, tile had been sealed (November 10, 1966) and there was no leachate discharging to the river.

APPENDIX III

PROPOSED WATER QUALITY STANDARDS
FOR MAUMEE RIVER BASIN
OHIO WATER POLLUTION CONTROL BOARD

January, 1967

(1) The design or critical flow defined as the minimum annual seven consecutive day warm weather flow which is exceeded in 80 percent of the years will be used in applying the stream-water quality criteria;

(2) All plans and proposals for abatement or correction of pollution will be approved by the Ohio Department of Health as required by law and such approvals shall constitute approval by the Board;

(3) All sewage will be given secondary treatment (biochemical oxidation), and the facilities to provide such treatment will be constructed and placed in operation without delay, and in no instance later than January 1, 1970;

(4) All effluents will be satisfactorily disinfected to meet the criteria for downstream water uses and the facilities to provide such disinfection will be installed without delay;

(5) All organic industrial wastes will be given secondary treatment and other constituents will be adequately treated to meet the water quality conditions and criteria, and the facilities to provide such treatment will be constructed and placed in operation without delay, and in no instance later than January 1, 1970;

(6) Local programs will be initiated to control and reduce pollution resulting from (a) by-passing, (b) spillages, and (c) discharges resulting from construction or breakdowns;

(7) Necessary studies will be made and where feasible, plans and construction programs will be developed as rapidly as possible, for reducing pollution from existing combined sewer overflows;

(8) Where necessary, supplementary treatment of wastewaters will be provided to the fullest extent consistent with current research and technological advances;

(9) The sustained stream flow plan included in the Northwest Ohio Water Plan adopted by the Ohio Water Commission is hereby made a part of this program and the implementation of this plan will be necessary to fully meet the water quality conditions and criteria; and

(10) Ohio's stream-water quality monitoring program will be expanded to adequately provide assurances of compliance

with these standards.

Furthermore, the Board and the Ohio Department of Health will encourage and assist other agencies such as the Ohio Water Commission and the Soil Conservation Service, U. S. Department of Agriculture, in the implementation of effective soil erosion control programs, and programs for the reduction of the run-off of phosphorous, nitrogen compounds, and pesticides.

Enforcement of these requirements will be carried out by means of the respective permits issued to municipalities, counties, industries and other entities discharging to the waters of the stream basins considered herein, and failure to comply with the permit conditions will result in legal action in accordance with the provisions of laws.

MR. STEIN: Thank you, Mr. Eagle.

I think this is most encouraging. This report is great.

MR. EAGLE: Coming from you, I consider that a compliment.

MR. STEIN: You know, I have been living for this day for fifteen years.

(Laughter.)

Are there any comments or questions?

MR. POOLE: I just want to add my comment and congratulate our sister State of Ohio. We all recognize they have had a tremendous problem, and I think you have certainly gotten your teeth in it. This is really encouraging.

MR. EAGLE: Thank you, Mr. Indiana.

MR. STEIN: Any other comments?

MR. METZLER: Well, I would like to add my compliments to this report. It is a fine, solid job. It shows good, solid accomplishment.

I am interested, George. May I just pick out a little item here and inquire about it?

MR. EAGLE: Surely.

MR. METZLER: Concerning this business of putting things on the roadways, and so forth, have you quit salting the highways in Ohio?

MR. EAGLE: We define the solid wastes as unwanted material.

(Laughter.)

MR. METZLER: Well, actually, I am under the impression that chloride in this northern climate -- well, we do apply very extensive amounts of salt to the highways. I am under the impression that this is a more important pollutant than we pay much attention to, and I wondered whether or not --

MR. EAGLE: I think this is right, Dwight, and I don't quite think it would come under our idea of waste legislation, but I do think this is a problem that has to be coped with perhaps by the Water Pollution Control Boards on our rising chloride contents.

MR. METZLER: Thank you.

MR. STEIN: Mr. Poston?

MR. POSTON: I can't refrain from asking a question, George, and it pertains to your municipal schedule and your industrial waste schedule.

I note that the municipal schedule essentially is that secondary treatment will be provided by 1970.

MR. EAGLE: Yes.

MR. POSTON: In the entire plant -- and I think this is very commendable.

In your treatment schedules for industrial wastes, I see that you have a list of numbers here, and it indicates that by the end of 1968 you will have completed 28, and others you will have completed before.

I wonder if this list includes all of the industries in this area.

MR. EAGLE: To the best of our knowledge, Mr. Poston, it does.

MR. POSTON: Well, that is very commendable.

Now, I would ask that other question, I guess, if you insist.

(Laughter.)

MR. EAGLE: What is it?

MR. POSTON: Well, I wondered whether or not --

MR. EAGLE: The answer is "no, yes, no."

(Laughter.)

MR. POSTON: I was going to ask George if he is successful in getting industrial waste information from the industries in the area, and that it is eligible for open file.

MR. EAGLE: Well, you mixed me up a little bit.

The first answer is yes, we do get very good information, and we are getting better all the time as we work more closely with these industries in developing their monitoring programs and their procedures for testing, and so on. We do get, for the most part, very comprehensive reports from industries, particularly the larger ones.

Now, as to the second part of your question, are they maintained in open files? No, they are not maintained in open files, because by Ohio law this is not permissible.

However, I hasten to add that so far, I believe, Mr. Poston, as far as your office is concerned, that we have obtained permission from the industries to give you all of the pertinent information that we have in our files, and I believe we have fairly well satisfied your requests in this regard.

MR. POSTON: Thank you.

I would also commend you on your report.

MR. EAGLE: Thank you.

MR. STEIN: Mr. Eagle, do you think that when this program is in full operation, say in 1970 or the end of 1970, that we can look forward to the day when the Cleveland beaches will be open?

MR. EAGLE: I wish I could say that, Mr. Stein. I hope that is true, but I think that we have a tremendous problem in storm water drainage from urban areas that has not been faced up to, and even fully evaluated. I just don't know whether this is going to meet our present criteria for bathing water.

Here again, I hope that the Federal people and the State people and everybody else can band together here

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to make some real studies to come up with some more realistic criteria -- bacteriological criteria -- for bathing waters.

MR. STEIN: By the way, I agree with you on the criteria, but there may be another explanation.

You know, we had this problem in Michigan at Sterling State Park. At least the resident crew we have had there has worked something out, and they think if the recommendations are followed up, they would be able to open the beach.

Now, I don't know that the sole answer to the problem is just suggesting the criteria, but it might be that once we get this set and we concentrate on these beaches--because again, as Mr. Poole indicates, for the people in the area this is what they consider pollution control--that we may be able to come up with a program, or something which will do it. At least this would permit us to go in on the beach problem.

MR. EAGLE: Yes. I would just like to say that I base my answer on the fact that we are hopeful that the program will get all sewage through the treatment plants, and then the treatment plants will provide upwards of 90 percent treatment plus effective disinfection. Beyond this, at this point, I just don't quite know where we go.

MR. STEIN: As I say, I don't either, but I think what we have to keep our eye on -- and I think the people will keep our eyes on this if we don't -- is the notion -- and I say Cleveland for you, but I think you can duplicate this in any large city on the lake -- what they are really going to judge our success or lack of success by is whether we can open these Cleveland beaches or not.

MR. EAGLE: Maybe we need to find a way in Cleveland, like they did in Chicago, to run it downstate.

(Laughter.)

MR. STEIN: I think with your program, Mr. Eagle, we might say in Ohio all roads run to Columbus.

MR. OEMING: Mr. Chairman, on this discussion of beaches, I just have this observation: That if we are successful in getting the Potomac in a condition where people will be able to swim in it, then I think you can be sure that the Lake Erie beaches will also be in that condition.

MR. STEIN: By the way, I hope you are as far advanced -- and I hate to answer this with a question directed at New York, but the bacterial loading in the Potomac in the Washington metropolitan area over the last few summers, since we have put up the plant, is, by and large, comparable to or better than you have at Coney Island.

MR. OEMING: Would you still want to swim in it?

MR. STEIN: I? No.

(Laughter.)

However, I tell you: I grew up near Coney Island, and I think I am immune to what they have there. I'll swim there.

(Laughter.)

Do we have any further questions or comments?

(No response.)

MR. STEIN: If not, let's call on New York. Mr. Metzler.

STATEMENT OF DWIGHT METZLER, CONFEREE AND DEPUTY COMMISSIONER, DIVISION OF PURE WATERS, NEW YORK STATE DEPARTMENT OF HEALTH

MR. METZLER: Chairman Stein, Fellow Conferees:

We are pleased to have you here in Buffalo. Even though I come at the end and I suppose I should have welcomed you at the beginning, we are glad to have you here again.

We in New York State appreciate this opportunity to act as hosts to the conferees. This enforcement conference has served as an effective vehicle for the coordination of water pollution abatement matters and we have gained much from the constructive exchange of information which has resulted from the prior meetings. I know that our joint progress to abate pollution will be accelerated by the results of our meeting today.

You are surely pleased, as am I, at the perspective gained of the Lake Erie problem since our original conference here in August of 1965. At that time, I was seriously concerned about the conclusive declaration that Lake Erie was "dying." There was then prevalent a serious over-reaction by all individuals, officials, and agencies which I fear has been detrimental to the economy and general well-being of the communities and industries in the Lake Erie Drainage Basin. The results of that essentially negative pronouncement have since been substantially mended, but portions of the original damage remain. In place of hysteria, we have established a business-like approach toward solving our joint Lake Erie water pollution problems. And I thank you gentlemen for the leadership which has led to the present constructive approach to our mutual problems.

In August of 1965, New York State for some reason was cast in the role of the nonconformer when, in fact, we were, because of our geographical location, the recipient, rather than the contributor of the major sources of pollution

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in the Lake Erie Basin. Our willingness to let the conference work, to let our sister States proceed with their programs, and to get on with our own programs, was interpreted as a reluctance to cooperate. I hope this attitude has changed, and that the State-wide progress in our Pure Waters Programs has demonstrated that our original position of genuine concern about pollution abatement, coupled with vigorous program activity, have shown the sincerity of our approach.

Since our meeting here in 1965, many important advances have been made on a State-wide basis which have produced direct results in that portion of New York State which is tributary to Lake Erie. These advances include such major items as:

1) The overwhelming approval by the voters of New York State of the $1 billion construction grant program. As of March 8, 1967, we have processed 39 construction grant projects for State grants totaling $45,883,994. Sewage works projects in varying stages of construction are located in the basin. These include the Village of Silver Creek, Erie County Sewer District #2, two projects in the Town of Cheektowaga, the City of Lackawanna, and Erie County Sewer District #3. As final engineering plans are completed, grant applications are being received at an increasing rate.

D. Metzler

2) Activity in our strengthened enforcement program which became operative on September 1, 1965, has resulted in the initiation of 322 cases, of which 237 have proceeded to the issuance of formal abatement orders. In the Lake Erie Basin, we have initiated 25 cases and issued 12 orders. Details appear in our report.

3) Recognizing the need to generally upgrade the quality of our surface waters, we have eliminated on a State-wide basis, all of the former E, F, and special classifications. In the Lake Erie Basin, Buffalo River, Big Sister Creek, and Cattaraugus Creek were upgraded. Attention has also been given to ground water classification, and on March 8, 1967, formal approval was given by the State Water Resources Commission to our proposed ground water classification system. We will now proceed rapidly to assign these classifications to all of the ground waters of the State.

4) Every major metropolitan area in the State has taken advantage of our comprehensive sewerage utility planning program. Erie County, for instance, is rapidly progressing with a study which will not only provide answers to present trunking problems, but will also provide a master plan for the collection and treatment of wastes on an area-wide basis. A similar study will be started of Chautauqua County so that the entire Lake Erie Basin will be included.

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D. Metzler

5) The State Health Department has been reorganized creating an adequately staffed Division of Pure Waters capable of providing the engineering and technical services required to properly conduct the Pure Waters Program.

These are but a few of the State-wide advances which we have made since our last meeting.

Again let me assure you, Chairman Stein, as well as the representatives of the other States, that New York State is making every effort to carry out its responsibilities in the Federal-State partnership which this conference provides. It is our conviction that a State can and should play a vital role in pollution abatement. We are doing just that. Our participation with you in other enforcement conferences -- the Hudson River and Moriches Bay -- have been especially rewarding and we look forward to similar conferences in other areas of the State. The conference is a setting in which both State and polluter responsibilities are sharply defined. And we mean to follow through with our portion of the abatement task.

With your permission, I will ask Mr. Robert Hennigan, Assistant Commissioner of the Division of Pure Waters, to review in more detail our plans for abatement and our activities here in the Lake Erie Basin.

MR. STEIN: Thank you, Mr. Metzler, for an excellent presentation.

Dwight, we are not following you around. You know, when Mr. Metzler was out in Kansas we had a series of enforcement actions and we were very active out there. Now he is in New York, and here we are sitting on his doorstep again.

I think we have both worked this out rather cooperatively, and I think we have made considerable advances.

MR. METZLER: Thank you, Murray.

I think I'm a little like that fellow that causes all that trouble in the "Li'l Abner" comic strip. Wherever I am, there is trouble.

MR. STEIN: I think wherever there is a tough job, they might seek you out, Dwight.

While Mr. Hennigan is getting up, I wonder if we can ask Mr. Caverly, Chief Engineer of the Ontario Water Resources Commission, who is here, to stand?

Mr. Caverly.

(Mr. Caverly arose.)

MR. STEIN: Thank you.

If we have not already done so, the Michigan report will appear in the record as if read, there being no objection.

Mr. Hennigan?

STATEMENT OF ROBERT D. HENNIGAN, CONFEREE
AND ASSISTANT COMMISSIONER, DIVISION OF
PURE WATERS, NEW YORK STATE DEPARTMENT OF
HEALTH

MR. HENNIGAN: Mr. Chairman, Conferees, Ladies and Gentlemen:

I will start off first by asking you, Murray, to include our report as if read in the minutes of the conference.

MR. STEIN: Without objection, that will be done.

MR. HENNIGAN: Some of the things that we will talk about today, as Mr. Metzler did, apply to the State of New York as a whole. I think everybody here realizes that the State program is not limited to any specific area and does cover entire New York State.

We have come a long way since our first meeting here in August of 1965. That original traumatic period of disorganized general public concern over the deteriorating quality of the waters of Lake Erie has been followed by diligent staff work by both the Federal and State agencies, so that today I believe we have advanced to the point at which not only a clear **definition** of the problem exists, but also methods of solution are at hand.

The greatest pollution problem in Lake Erie is, of course, the overenrichment of the lake's waters. This specialized enrichment problem is especially important because Lake Erie is particularly vulnerable, since the hydrography of the lake is characterized by its relative warmth, extensive shallows and the receipt of surface wash from fertile soils surrounding the lake. When we add to this natural weakness the assault of nutrients introduced by municipalities and industries, eutrophication becomes alarming. An all-out effort must be made not only to treat all wastes, but to also give special attention to treatment methods which will remove the nutrients.

Having defined the problem, we have moved on to the engineering, legal and administrative steps necessary to control the sources of pollution. We all recognize that abatement activities involve more than the administrative exercise of establishing correction timetables. The control agency must be armed with a variety of technical, administrative, fiscal and legal tools.

Let me review with you the policies and procedures which we have adopted and are presently using in New York State's portion of the Lake Erie Drainage Basin.

1. Municipal waste treatment plants will be designed to provide at least secondary biological treatment. It is recognized that further treatment will be required in individual cases under present conditions, and also that as population increases develop, additional treatment will be required. Assimilative capacity studies, which provide a basis for engineering design, have been completed for every major stream in the basin.

This adds emphasis to George Eagle's comment that we are dealing with a dynamic continuum here, and that we are not, all of a sudden, going to come to the end of the road in three or four or five years, but that this is a continuing program that will go on.

MR. STEIN: Mr. Hennigan, do you join Mr. Eagle in considering secondary biological treatment to accomplish 90 percent BOD removal?

MR. HENNIGAN: The present definition that we are using in New York State is that secondary treatment is any biological treatment method which will remove BOD in the ranges from 75 to 95 percent, and that in each individual case the particular removals will be designed based on local conditions.

I will continue.

2. Continual adequate disinfection will be required at all treatment plants to meet coliform limits presently established by New York State legislation. This is now practiced at existing plants.

3. Industries must provide degrees of treatment equivalent to that required of municipalities.

4. Special consideration must be given to phosphate removal, such as by chemical treatment of digestor supernatant.

5. Area-wide utility planning must be completed so that logical and economical projects are constructed. Such planning is currently under way in Erie County and will be completed this November. A similar study for Chautauqua County to be started this year will be completed early in 1968. Studies are under way for Genesee and Wyoming Counties and for the City of Niagara Falls. These too will be completed in 1968.

6. Regulations covering the disposal of wastes from boats must be provided. New York State passed such legislation last year and the rules and regulations to implement control are now being prepared. This includes waste disposal facilities at marinas.

7. A water quality monitoring and alert system should be provided which serves metropolitan and industrial

complexes. As you know, we have had an alert system in effect since 1958 in our Erie-Niagara Drainage Basin. The details of the system are shown in the appendix of this report.

Our water quality monitoring in the basin consists of a series of manual stations. We are testing two prototypes of remote automatic water quality monitors now and will expand to a sixty-station network which includes five stations in the Erie-Niagara Drainage Basin.

Our sewage treatment plant maintenance and operation grant program requires certain routine practices which augment the above monitoring activities. Daily operating reports are submitted on a monthly basis, a minimum series of tests of raw and treated wastes is required as are sewer use ordinances. Sewer collection systems, overflow devices and treatment facilities are inspectected routinely. We are entering the third year of this particular grant program, and the financial value associated with receiving a direct grant of one-third of the operating and maintenance costs for proper operation has proved to be a strong incentive to local municipalities.

8. Where interstate or international waters are involved there must be a sharing of analytical and technical data. I have directed our regional offices to provide the

Federal Water Pollution Control Administration with all of our information on waste loading. This sharing of information will eliminate duplication of effort and because staffing on the State and probably the Federal level has not been completed, will facilitate the assembling of a more complete record. We are presently working with the States of Pennsylvania and New Jersey to coordinate water quality criteria, stream standards and abatement schedules so that abatement activities and standards reports will be compatible.

In effect, we have completed most of our discussions with the States and are in agreement.

9. Water quality management, of course, is the foundation of water resources management. If we are to be successful in accomplishing the complete task on Lake Erie, we must move on to the multipurpose management of our water resources. The State Health Department has cooperated with the Erie-Niagara Regional Water Resources Planning and Development Board. This Board has completed its base studies, is acting as a consultant to municipalities, and is prepared to proceed with implementation.

Certain of the recommendations resulting from the August 1965 conference have been reviewed with you in my general remarks thus far. To clarify the record in the context of the hearing proceedings, let me summarize as follows:

Recommendation No. 7

> Municipal wastes be given secondary treatment or treatment of such nature as to effectuate the maximum reduction of BOD and phosphates as well as other deleterious substances.

Our general New York State policy prior to the August 1965 meeting was and continues to be that all municipal wastes will receive secondary treatment as an absolute minimum. (A copy of our policy statement is included in Technical Bulletin #6 in the appendix of this report.)

Recommendation No. 8

> Secondary treatment plants be so designed and operated as to maximize the removal of phosphates

The maximum reduction of phosphates in domestic and industrial waste discharges is required, based on present engineering and scientific knowledge. We must caution, however, that there is a need for the development of practical and economic methods for phosphate removal, particularly for existing treatment works.

Recommendation No. 9

Disinfection of municipal waste effluents be practiced in a manner that will maintain coliform concentrations not to exceed 5,000 organisms per 100 ml at public water supply intakes, and not to exceed 1,000 organisms per 100 ml where and when the receiving waters in proximity to the discharge point are used for recreational purposes involving bodily contact. It is recognized that bathing water quality standards are established by statute in New York State.

This, of course, is required by New York State legislation. It is practiced in the Lake Erie Basin, and all new wastewater facilities are designed to provide for adequate disinfection of wastes. (A copy of the policy statement regarding disinfection appears in the appendix of this report, Pages A66 and A67).

R. D. Hennigan

Recommendation No. 10

All new sewerage facilities be designed to prevent the necessity of bypassing untreated wastes.

Storm water overflows and all bypasses will be eliminated where physically and technically feasible. This matter is being studied in our comprehensive utility study program. Municipalities are required to properly maintain existing overflow devices.

Recommendation No. 11

Combined storm and sanitary sewers be prohibited in all newly developed urban areas, and eliminated in existing areas wherever feasible. Existing combined sewer systems be patrolled and flow-regulating structures adjusted to convey the maximum practicable amount of combined flows to and through treatment plants.

The construction of combined sewers has been prohibited for many years in New York State. As mentioned previously, our maintenance and operation grant program requires routine surveillance of overflow devices.

Recommendation No. 12

> A program be developed to prevent accidental spills of waste materials to Lake Erie and its tributaries. In-plant surveys with the purpose of preventing accidents are recommended.

Industrial surveys and inspection of municipal and industrial waste treatment facilities are routine Department programs.

We have through the new registration law put stringent requirements in reference to the reporting of waste loadings, and also such questions as accidental spills.

Recommendations have been made and necessary process control including new construction to prevent accidental discharges of deleterious materials have resulted.

Recommendation No. 13

> Unusual increases in waste output and accidental

> spills be reported immediately to the appropriate State agency.

Alert systems as previously mentioned along the Niagara frontier involving regulatory agencies (State and county health departments), municipal water supplies, municipal waste treatment plants, and industrial discharges have been established and operated since 1958. In a vast majority of the instances, no difficulty has been encountered in obtaining cooperation of all of the persons involved. (A description of the warning system is included in the appendix of this report.)

Recommendation No. 14

> Disposal of garbage, trash and other deleterious refuse in Lake Erie or its tributaries be prohibited and existing dumps along river banks and shores of the lake be removed.

Disposal of garbage and other deleterious refuse surrounding or into waters or areas tributary to Lake Erie is prohibited. A solid waste disposal study is being finalized in Erie County and Chautauqua County is submitting an application for a solid waste disposal study. These studies will facilitate the provision of adequate, properly operated central facilities, eliminating a preponderance of small, poorly maintained dumping sites.

We have no disposal of solid waste material -- that is, municipal refuse -- in the waters of Lake Erie. There has been a question locally about the discharge of slag from the Bethlehem Steel Company into the waters of Lake Erie. There was a hearing held recently by the Water Resources Commission relative to this. We are now in the process of developing a policy statement.

This involves many State agencies. It involves, first of all, the use of underwater State land, which is under our Office of General Services; it involves the Stream Protection Act, which is administered by our State Water Resources Commission; and it also involves the State Department of Health in its reference to solid waste disposal. It also involves Federal agencies, particularly the Corps of Engineers, on the question of bulkhead lines and navigable water, and what material can be used as fill, and other practices to eliminate the effect of disposal of solid wastes, and important water quality criteria.

R. D. Hennigan

Recommendation No. 16

Industrial plants improve practices for the segregation and treatment of waste to effect the maximum reductions of the following:

a. Acids and alkalies
b. Oil and tarry substances
c. Phenolic compounds and organic chemicals that contribute to taste and odor problems
d. Ammonia and other nitrogenous compounds
e. Phosphorous compounds
f. Suspended material
g. Toxic and highly-colored wastes
h. Oxygen-demanding substances
i. Excessive heat
j. Foam-producing discharges
k. Other wastes which detract from recreational uses, esthetic enjoyment, or other beneficial uses of the waters.

Industrial plants are being required in our enforcement program to provide a specific schedule for the following:

R. D. Hennigan

a. Retention of an engineer

b. Report and preliminary plans outlining the problem and making proposals for corrective action.

c. Preparation and submission of final plans for necessary facilities

d. Construction of facilities outlined above; and

e. Abatement of pollution.

Plants designed as a result of the above procedure will provide for maximum reductions of the items listed in the recommendations.

Recommendation No. 17

The Michigan, Indiana, Ohio, Pennsylvania and New York Water Pollution Control Agencies undertake action to insure that industrial plants discharging wastes into waters of Lake Erie and its tributaries within their respective jurisdictions institute programs of sampling their effluents to provide necessary information about waste outputs. Such sampling shall be conducted at such locations and with such frequency as to yield statistically reliable values of all waste outputs and to show their variations. Analyses to be so reported are to include where applicable: pH, oil, tarry residues, phenolics, ammonia, total nitrogen, cyanide, toxic materials, total biochemical oxygen demand, and all other substances listed in the preceding paragraph.

Our present new State law provides for the registration of outfalls, tests to provide analytical data, and reporting to the State Health Department. The concentrations of pollutants will be determined, recorded and reported, in conformity with the items listed in the Recommendations and Conclusions. (Details of the legislation are contained in the appendix of this report.)

A year ago New York State enacted some legislation. We now have the rules and regulations which will be enacted shortly. The details are contained in the appendix to this report.

Recommendation No. 18

Waste results be reported in terms of both concentrations and load rates. Such information will be maintained in open files by the State agencies for all those having a legitimate interest in the information.

This item is incorporated into the procedures followed under the registration law now being implemented. Although not incorporated in this report, I will be glad to review our program requirements with you.

Recommendation No. 21

> Regional planning is often the most logical and economical approach toward meeting pollution problems. The water pollution control agencies of Indiana, Michigan, Pennsylvania, New York and Ohio, and the Department of Health, Education, and Welfare will encourage such regional planning activities.

As you will recall, New York State urged that this recommendation be included at the time of our original meeting. Utility planning studies are under way. The State Department of Health is currently involved in the conduct of the Erie-Niagara Regional Water Resources Planning and Development Board study, involving a major area in the Lake Erie Drainage Basin within the boundaries of New York State.

R. D. Hennigan

The appendix to this report contains further information regarding New York State programs.

APPENDIX

Abatement Status - Lake Erie Drainage Basin

Case History - Dunkirk, N. Y. Abatement Procedures

Case History - Bethlehem Steel Corporation Abatement Procedures

Research Activities Pertinent to the Lake Erie Drainage Basin

Multi-purpose Water Resource Planning

Status of State and Federal Grant Programs

Industrial Polluters, Erie-Niagara Basin - Legal Status

Municipal Polluters, Erie-Niagara Basin - Legal Status

Elimination of E and F Standards and Approval of Ground Water Classifications

Rules and Regulations for Waste Outlets

R. D. Hennigan

Stream Assimilation Studies in the Erie-Niagara Basin

Warning System - Niagara Frontier

Schedule for Erie County Public Water Supply Master Plan Study

Schedule for Erie County Comprehensive Sewerage Study

Status, Sewage Treatment Plant Operation and Maintenance Grant Program

Policy Regarding Disinfection of Treated Wastes

Technical Bulletins Pertinent to the Lake Erie Drainage Basin

ABATEMENT STATUS - LAKE ERIE DRAINAGE BASIN

POLLUTER NAME & LOCALITY	PRELIM. PLANS	FINAL PLANS	START CONST.	IN FULL OPERATION	REMARKS
Moench Tannery, Gowanda V	9/1/67	6/1/68	1/1/69	1/1/71	
E. Tanners Gl. Dv., Gowanda V	1/1/67*	6/1/67	4/1/68	1/1/70	
Brocton V	5/1/66*	7/1/67	4/1/68	9/1/69	
Dunkirk C	5/1/67	5/1/68	8/1/68	12/31/69	
Westfield V	6/1/67	6/1/68	9/1/68	12/31/69	Schedule being negotiated
Growers Cpr Grp, Westfield V	6/1/67	6/1/68	9/1/68	12/31/69	connect to Village sewers
Huntley Mfg Com, Brockton V					connect to Village sewers as soon as available
RC McAteer Cmpy, Ripley T					Minor pollutional significance
Seneca Westf Md, Westfield V	6/1/67	6/1/68	9/1/68	12/31/69	Schedule proposed although connection to Village sewers logical choice
Welch Grp Juice, Brocton V					To close 6/67

ABATEMENT STATUS - LAKE ERIE DRAINAGE BASIN (cont'd)

POLLUTER NAME & LOCALITY	PRELIM. PLANS	FINAL PLANS	START CONST.	IN FULL OPERATION	REMARKS
Welch Grp Juice, Westfield V	3/1/67	12/31/67	9/1/68	12/31/69	Schedule proposed although connection to Village sewers logical choice
.llegh Ludl Stl, Dunkirk C	12/1/66*	1/1/67	3/1/68	1/1/69	
Great Lk Print, Dunkirk C					Abated
Twin Cits Asplt, Dunkirk C					Treatment plant destroyed by storm of 2/16/67. Being rebuilt
Niagara Mhk Cor, Dunkirk C					Abated
North Collins V	1/1/68	9/1/68	3/1/69	3/1/70	
Producers & Canners, N. Col. V					To close 7/15/67
City Laundry, Dunkirk C					Connect to City sewers as soon as available
Silver Creek V		11/1/65*	3/1/66 *	3/1/67	Sewers 95% completed. Plant 75% completed
Slvr Creek Prsrvng, Silver Crk					Connect to Village sewers as soon as plant is in operation

ABATEMENT STATUS - LAKE ERIE DRAINAGE BASIN (cont'd)

POLLUTER NAME & LOCALITY	PRELIM. PLANS	FINAL PLANS	START CONST.	IN FULL OPERATION	REMARKS
General Chemical, Buffalo C					Investigation indicates not a polluter
Bthlhm Steel Co, Lackwnna C	1/1/67*	1/1/68	6/1/68	1/1/70	
Scony Mobil Oil, Buffalo C		10/1/67	4/1/68	12/1/69	Schedule proposed (to close refinery 1968)
National Aniline, Buffalo C		1/18/68		1/1/71	Semi-annual reports submitted on corrective action
Depew V	2/1/67*	2/1/68	6/1/68	1/1/70	
Lancaster V	2/16/66*	1/1/67	6/1/67	6/1/68	County Sewer District formed including Village and Town of Lancaster
Donner Hanna Ck, Buffalo C	10/1/67	10/1/68	3/1/69	12/31/69	
Repblic Steel, Buffalo C	4/1/67	10/1/68		7/1/71	
Hanna Furnace, Lkawanna C					Status being evaluated
Old Dutch Foods, Blasdell V					Abated
No. Collins T Lawtons (H)	10/1/67	4/1/68	9/1/68	12/31/69	Schedule proposed

ABATEMENT STATUS - LAKE ERIE DRAINAGE BASIN (cont'd)

POLLUTER NAME & LOCALITY	PRELIM. PLANS	FINAL PLANS	START CONST.	IN FULL OPERATION	REMARKS
Growers & Packers Coop North Collins	3/1/68 9/1/68	3/1/69	6/1/69	6/1/68 6/1/70	Connect with Village or separate system
Fredonia V	4/1/67	1/21/69	8/1/69	1/2/71	Plans for additional treatment facilities currently under way
Dunkirk Conference Grounds Sheridan T					Primary, requires secondary treatment
Holy Cross Seminary Dunkirk T					Schedule being negotiated. Primary, requires secondary treatment or connection to municipal sewers
Ripley Sewer District Ripley T					Secondary treatment required

* Indicates steps have been completed.

Note: On page 122 of the July 1965 Federal Report, the following industries indicated as being in the New York portion, Erie-Niagara Drainage Basin, are actually located in Pennsylvania: Electric Materials Co.; Erie Brewing Co.; Erie Reduction Co.; Kaiser Aluminum Co.; Union Plating Works.

R. D. Hennigan

STATE OF NEW YORK

DEPARTMENT OF HEALTH

Hollis S. Ingraham, M.D. Laverne E. Campbell, M.D.

Commissioner Regional Health Director

REGIONAL OFFICE

125 Main Street

Buffalo, New York 14203

September 28, 1965

Mayor and City Council

City of Dunkirk

City Hall

Dunkirk, New York 14048

RE: Comprehensive Plan for

Abatement of Pollution

Gentlemen:

Attached is a copy of the proposed abatement plan for the City of Dunkirk. We are sending this to you for your review and comments prior to printing and submission to the Water Resources Commission to enable you to verify that the facts contained therein are accurate and up-to-date and that the proposed time schedule is in keeping with the complexity of the problem in your instance.

We would appreciate your critical review and comments by October 15, 1965. If we do not hear from you by this time, we will assume that you concur with the findings and the proposed time schedule. This material will therefore be submitted in its entirety to the New York State Water Resources Commission for approval of the overall plan for abatement of pollution in the Lake Erie - West End Drainage Basin.

Very truly yours,
John S. Tygert, P.E.
Project Engineer

Att:

cc: Thomas T. Nowicki, City Clerk, City of Dunkirk
Chautauqua County Department of Health
Mr. Irving Grossman

* * * *

CITY OF DUNKIRK

Population: 12,205

Served: 17,840

Sewerage System: Sewerage system consists of collection and a treatment plant consisting of bar screens, grit chambers, Imhoff tank, chlorine contact chamber, vacuum filters and auxiliary sludge drying beds, pre and post chlorination.

Receiving Waters: Lake Erie, E (east of Dunkirk Harbor) classified as "B."

Effects of Discharge on Receiving Waters: The discharge of primary treated sewage into the surface waters of the State possibly results in the enrichment of the water consequently causing profuse growths of algae and other aquatic vegetation.

Needed Improvements: A competent engineer should be engaged to study the plant operations. Investigation should include, but not be limited to, the addition of secondary treatment facilities to eliminate as much as practically possible any contributions of phosphorus or nitrogen compounds which accelerate the growth of aquatic vegetation within the lake. Work should proceed on this program in accordance with the following time schedule.

Abatement Time Schedule:

Phase	Date
1. Perform engineering studies and submit report by	May 1, 1966

Phase	Date
2. Submit final plans by	August 1, 1966
3. Start construction by	June 1, 1967
4. Pollution abated by	January 1, 1969

* * *

CITY OF DUNKIRK
NEW YORK

Thomas P. Nowicki
City Clerk

May 19, 1966

Mr. Robert D. Hennigan, P.D., Director
Bureau of water Resource Services
New York State Department of Health
84 Holland Avenue
Albany, New York

Dear Mr. Hennigan:

Your letter of April 26, 1966 addressed to the Mayor and Common Council was presented to a meeting of the Common Council held on May 17, 1966 and was referred to me for reply.

Please be advised that on September 28, 1965, a similar letter was addressed to the Mayor and Common Council and at that time the Mayor wrote a letter stating the city's intention to comply with the directives contained in that letter.

For your information I am enclosing a copy of all correspondence had between the City of Dunkirk and your department and also a copy of the resolution adopted by the Common Council and approved by the Common Council and approved by the Mayor on October 5, 1965.

Very truly yours,
Thomas P. Nowicki
City Clerk

TPN:ed
Enc.

* * *

October 14, 1965

Re: Comprehensive Plan for
Abatement of Pollution

State of New York
Department of Health
Regional Office
125 Main Street
Buffalo, New York 14203

R. D. Hennigan

Attention: Mr. John S. Tygert, P.E.
Project Engineer

Gentlemen:

Receipt is acknowledged of your letter dated September 28, 1965, together with attached copy of the proposed abatement plan for the City of Dunkirk. We have reviewed the abatement plan and respond as follows:

Population: Correct as stated.

Sewered: Correct as stated.

Sewerage System: Correct as stated, except that the system includes a sewage low lift pumping station in addition to the facilities listed.

Receiving Waters: Correct as stated.

Effects of Discharge on Receiving Waters: Statement may be correct, as to the possibility of enrichment of the water due to the discharge of primary treated sewage.

Needed Improvements: The City of Dunkirk is in agreement with the statement in this paragraph and as evidences of its willingness to cooperate in every degree, the Honorable Council of the City of Dunkirk has passed a resolution employing the firm of Havens and Emerson to carry out the suggestions contained in this paragraph. (Copy attached hereto.)

Abatement Time Schedule: It is the City's intent to conform to Phase 1 - scheduled for completion by May 1, 1966. It is questionable that final plans can be prepared and submitted within three (3) months after the submission of the engineering studies. Nevertheless, our engineers have assured us that they would expedite the work required under Phase 1 and would prosecute the design and production of final plans and specifications within six (6) months after the submission of the engineering studies. Should the final plan preparation require a longer time, then, it is obvious that the start of construction would also have to be advanced.

It is the intention of the City of Dunkirk also to cooperate in every way with its industries in assisting them in abating pollution and meeting the conditions of your letters to such industries. It is to be understood, of course, that the actual construction of secondary treatment facilities and improvements to the existing sewage treatment plant will depend on a large degree upon federal and state funds being made available to assist in the financing of such improvements.

R. D. Hennigan

Very truly yours,

THE CITY OF DUNKIRK, NEW YORK

Hon. Joseph J. Steger, Mayor

JJS/aw

Enclosure

* * *

October 5, 1965

BY COUNCILMAN RANUS:

WHEREAS, the electors of the State of New York will vote on a one-billion dollar bond issue which will be used for the solution of water pollution problems in the State of New York at the general election to be held in November, 1965, and

WHEREAS, grants of money will be available for municipalities for the construction of sewage treatment plants, and

WHEREAS, it will be necessary in the near future for the City of Dunkirk, New York to construct a secondary sewage treatment plant to comply with the requirements of the Water Pollution Program of the State of New York, now, therefore, be it

R. D. Hennigan

RESOLVED, that Havens and Emerson, Consulting Engineers be authorized to prepare plans, specifications and detailed estimates of cost covering the construction of a secondary sewage treatment plant and present the same to this Council for approval.

* * *

CITY OF DUNKIRK
NEW YORK

Joseph J. Steger
Mayor

June 16, 1966

Mr. John S. Tygert, P.E.
Project Engineer Water Pollution
New York State Department of Health
Regional Office
125 Main Street
Buffalo, New York

Dear Mr. Tygert:

As per our telephone conversation this morning, please be advised that if you would arrange for a meeting, we will present ourselves for same together with representatives

R. D. Hennigan

of the firm of Havens and Emerson, our Consulting Engineers.

Very truly yours,

S/S Joseph J. Steger

Mayor

JJS:ed

Received

June 17, 1966

N.Y. State Dept. of Health

Buffalo Regional Office

* * *

STATE OF NEW YORK : DEPARTMENT OF HEALTH

- X

In the Matter of Alleged Violations of

Article 12 of the Public Health Law by

CITY OF DUNKIRK

Respondent(s)

- -X

In the Matter of Such Action, if any, as Should be Taken in Respect to Continuance, Modification or Revocation of any and all Permits for Discharge of Sewage and/or Industrial Wastes and/or Other Wastes, or the Effluents thereof into the waters of the State.

R. D. Hennigan

Issued to Respondents, their Predecessors or
Assignors.

CITY OF DUNKIRK

Respondent(s)

- X

NOTICE OF HEARING

To the above named Respondents:

It having been alleged that you are and have been discharging directly or indirectly into the waters of the State in violation Paragraph 1220 of the Public Health Law organic and/or inorganic matter which causes or contributes to a condition in contravention of the standards adopted by the Water Resources Commission pursuant to Paragraph 1205 of the Public Health Law and/or that you are and have been discharging sanitary sewage not having been subjected to effective primary treatment into classified waters of the State in violation of Paragraph 1225 of the Public Health Law, and it further appearing that it may be necessary or desirable that, in order to prevent or abate pollution of the waters of the State, any or all permits heretofore issued to the Respondents or to any of them or to the predecessors to assignor or assignors of any of them pursuant to Article 12 of the Public Health Law, or under the authority of laws previously enacted and thereafter repealed, be revoked or modified pursuant to Subdivision 3(f) of Paragraph 1210 of the Public Health Law,

TAKE NOTICE that you are required to correct the matters hereinbefore complained of or to appear in person or by attorney before the Commissioner of Health of the State of New York or his duly designated representative in a formal public hearing at Room 159 at 84 Holland Avenue, Albany, New York, on October 31, 1966 at 11:00 o'clock and answer the charges complained of.

TAKE FURTHER NOTICE that on the return day the Counsel of the New York State Department of Health will move that the above entitled proceeding be set down for trial at a future date IF an answer or statement pursuant to Subdivision 5 of Paragraph 1242 of the Public Health Law shall have been served upon said Counsel or filed with said Commissioner on or before said return date in which case no physical appearance is necessary and respondents will be informed as to the trial date.

TAKE FURTHER NOTICE that upon your failure to appear or serve or file an answer or statement pursuant to Subdivision 5 of Paragraph 1242 of the Public Health Law an Order of the Commissioner of Health of the State of New York directing correction of the matters complained of and/or assessing penalties provided by Paragraph 1250 of the Public Health Law may be made against you without further notice.

TAKE FURTHER NOTICE that said Commissioner has waived the Administrative Rules set forth in Part 76 of Title 10 of the Official Compilation of the Codes, Rules and Regulations of the State of New York herein except those pertaining to the service of notices of hearing and service of the final order and determination, and that the procedures to be followed on said hearing are those set forth in statute and case law in such case made and provided, and particularly but not exclusively in Articles 1, 2 and 12 of the Public Health Law.

DATED: Albany, New York
October 7, 1966

s/s ______________________________

DONALD A. MacHARG
Counsel
New York State Dept. of Health

TO: City of Dunkirk
Town Hall
Dunkirk, New York

Office & Post Office Address:
84 Holland Avenue
Albany, New York 12203

Attention: Hon. Joseph J. Steger, Mayor

* * *

R. D. Hennigan

STATE OF NEW YORK : DEPARTMENT OF HEALTH

- X

In the Matter of Alleged Violations of Article 12 of the Public Health Law by the

CITY OF DUNKIRK

(Chautauqua County)

Respondent(s)

- X

In the Matter of the Consideration of such Action as should be Taken in Respect to Continuation, Modification or Revocation of any and all Permits issued to the

CITY OF DUNKIRK

(Chautauqua County)

Respondent(s)

For the Discharge of Sewage and/or Industrial Wastes and Other Wastes or the Effluents thereof into the Waters of the State.

- X

ORDER

The Commissioner of Health of the State of New York having duly authorized in writing the convening of a consolidated public hearing in the above entitled proceedings and said hearing having come on to be heard pursuant to due written notice served in the manner provided by law, before Earl W. Murray, Esq., duly designated Hearing Officer and Representative of the Commissioner of Health of the State of New York on October 31, 1966 and the New York State Department of Health having appeared generally therein by its Counsel, Donald A. MacHarg, (Arthur T. Singer, Esq., of Counsel), and the Respondent having appeared by its City Attorney, Edwin J. Kuzdale, Esq. and after setting a date for a Trial Hearing the said Counsel for the said Health Department and the Respondent's City Attorney having stipulated in writing that facts exist upon which this Order may be predicated and further stipulating that any and all hearings or trials scheduled or to be scheduled hereafter be waived and further stipulating that the same may be made, filed and served.

NOW, upon reading and filing said Notice of Consolidated Hearing, the proof of service thereof, the order authorizing the issuance of said Notice, the stipulation of the parties and upon all the other papers before me, it is hereby ORDERED:

I. THAT the Stipulation submitted herein and herewith, be and the same is approved and the content thereof is found, ratified and adopted.

II. THAT sufficient facts of those alleged in the Notice of Hearing are true and the same are hereby found.

III. THAT the Respondent, City of Dunkirk shall on and after May 1, 1967, cease and abate and thereafter continuously keep abated all discharges of untreated or inadequately treated sewage, industrial and other waste effluents by it or through its sewers, drains, outlets and outfalls into Lake Erie in and about the City of Dunkirk in Chautauqua County unless said respondent, shall:

(a) By May 1, 1967 prepare and submit an engineering report and preliminary plans in approvable form to the New York State Department of Health for the interception and treatment of all sewage and industrial wastes that are discharged to and flow into the municipal sewer system.

(b) By May 1, 1968 prepare and submit final plans, as outlined above to the New York State Department of Health.

(c) By August 1, 1968 commence construction of the facilities described above.

(d) By December 31, 1969 complete the construction of the aforesaid treatment plant facilities according to approved plans.

(e) Upon completion of said construction aforesaid; put said treatment plant and facilities into operation and thereafter, treat all sewage, industrial waste and other effluents received by said facilities and sewage plant in such manner as to continuously conform with the standards deemed adopted for and assigned to Lake Erie at and about Respondent's points of discharge.

IV. THAT any and all permits for the discharge of sewage and industrial wastes into the Waters of the State heretofore issued to Respondent by or on behalf of the New York State Department of Health or the Commissioner of Health of the State of New York are hereby modified to refer and relate to and to permit only the discharge of sewage and constructed pursuant to this Order to become effective on December 31, 1969 or such other date that the sewage and waste treatment facilities aforesaid are completed and put into operation as may be otherwise authorized by the Commissioner of Health of the State of New York.

DATED: Albany, New York

February 24, 1967 s/s ____________________

HOLLIS S. INGRAHAM, M.D.
Commissioner of Health of
the State of New York

R. D. Hennigan

TO:

EDWIN J. KUZDALE, Esq.
City Attorney
Dunkirk, New York

JOSEPH J. STEGER, Mayor
City of Dunkirk
Dunkirk, New York

WATER RESOURCES COMMISSION
Conservation Building
State Campus, Washington Avenue
Albany, New York

* * *

STATE OF NEW YORK : DEPARTMENT OF HEALTH

- X

In the Matter of Alleged Violations of Article 12 of the Public Health Law by the
CITY OF DUNKIRK
(Chautauqua County)

Respondent (s)

- X

- X

In the Matter of the Consideration of such Action as should be Taken in Respect to Continuation, Modification or Revocation of any and all Permits issued to the

CITY OF DUNKIRK
(Chautauqua County)

Respondent(s)

For the Discharge of Sewage and/or Industrial Wastes and Other Wastes or the Effluents thereof into the Waters of the State.

- X

STIPULATION

IT IS HEREBY STIPULATED by and between the Mayor for the Respondent(s) and the Counsel for the New York State Department of Health that sufficient facts exist as alleged in the Notice previously served in the above entitled proceeding upon which the proposed Order attached hereto may be predicated and that such Order may be made, filed and entered by the Commissioner of Health of the State of New York.

IT IS FURTHER STIPULATED AND AGREED by the Respondent(s) that any hearings or trials heretofore or hereinafter scheduled in this matter are hereby waived and consent is hereby given that the annexed Order may be submitted to the Commissioner of Health of the State of New York forthwith to expedite its execution.

FOR THE CITY OF DUNKIRK.

DATED: February 10, 1967

s/s ______________________________
DONALD A. MacHARG, Counsel
New York State Department of Health

* * *

January 12, 1967

Office of Counsel Attn: Mr. Singer

John S. Tygert - Buffalo Regional Office

Dunkirk (C)

Proposed time schedule

At a meeting on October 19, 1966 a proposed time schedule for the pollution abatement program for the City of Dunkirk was discussed and the following agreement was arrived at:

1. Prepare and submit, through the Chautauqua County Health Department, to the New York State Department

of Health a report and preliminary plans to intercept and treat all sewage and industrial wastes currently tributary to the city sewer system by May 1, 1967.

2. Prepare and submit final plans, as outlined above, by May 1, 1968.

3. Commence construction of the facilities described above by August 1, 1968.

4. Construction complete, works in operation, and pollution abated by December 31, 1969.

If you require any additional information, please contact us.

cc: Mr. Grossman

jst:kp

* * *

STATE OF NEW YORK : DEPARTMENT OF HEALTH

- X

In the Matter of Alleged Violations of
Article 12 of the Public Health Law by
BETHLEHEM STEEL CORPORATION,
Respondent

- X

- X

In the Matter of the Consideration of
such Action as should be taken in Respect to
Continuation, Modification or Revocation of
any and all Permits issued to

BETHLEHEM STEEL CORPORATION,

Respondent

AND its Predecessors or Assignors
for the Discharge of Sewage, Industrial
Wastes and Other Wastes or the Effluents
thereof into the Waters of the State

- X

STIPULATION

It is hereby stipulated by and between the attorney for the Respondent and the Counsel for the New York State Department of Health that facts exist upon which the annexed proposed Order is predicated and that such Order may be made, filed and served. The Respondent waives its right to a hearing in the above proceedings.

s/s ______________________________
Attorney for Respondent

J. EDWARD MOUNT

R. D. Hennigan

s/s ______________________________
DONALD A. MacHARG

Counsel

New York State Department of Health

DATED: Albany, N. Y.

September 27, 1966

* * *

STATE OF NEW YORK : DEPARTMENT OF HEALTH

- X

In the Matter of alleged Violations of Article 12 of the Public Health Law of

BETHLEHEM STEEL CORPORATION,

Respondent

- X

In the Matter of the Consideration of such Action as should be Taken in Respect to Continuation, Modification or Revocation of any and all Permits issued to

BETHLEHEM STEEL CORPORATION,

Respondent

and its Predecessors or Assignors

ORDER

R. D. Hennigan

for the Discharge of Sewage and/or Industrial
Wastes and Other Wastes or the Effluents
thereof into the Waters of the State.

- X

A public hearing in the above entitled proceedings having come on to be heard pursuant to due written notice, served in the manner provided by law, before EARL W. MURRAY, esq. duly designated Hearing Officer and Representative of the Commissioner of Health of the State of New York and the New York State Department of Health having appeared generally therein by DONALD A. MacHARG, Counsel (VINCENT H. BARLOW, Senior Attorney), and the Respondent having appeared generally by its attorney and said counsel for the Department of Health and counsel for the Respondent having entered into a written stipulation that this Order may be made, filed and served, and exhibits having been received on behalf of said Department, and all proceedings had upon said hearing having been stenographically transcribed,

NOW, on reading and filing said notice of hearing, the stipulation, exhibits and minutes of the proceedings it is ORDERED:

I. That said stipulation be and the same is approved and the content thereof is found, ratified and adopted.

II. That the Respondent on and after January 1, 1967 shall cease and abate and thereafter keep abated, all discharges of industrial wastes by it into the waters of the State unless Respondent shall:

(a) On or before January 1, 1967 complete its engineering study currently in progress and submit same to the New York State Department of Health through the Erie County Health Department.

(b) On or before January 1, 1968 submit as aforesaid approvable final plans for facilities to intercept and treat all industrial wastes generated by the Respondent at its Lackawanna plant.

(c) On or before June 1, 1968 initiate actual construction of said facilities pursuant to said final plans as approved by the New York State Department of Health and thereafter continue said construction diligently.

(d) On or before January 1, 1970 complete said construction.

(e) Thereafter operate said facilities in such manner that the Respondent's discharges shall contravene neither the standards (deemed) adopted, established and assigned respectively for and to said receiving waters nor the standards (deemed) adopted, established and assigned respectively for and to the downstream waters.

III. That any and all permits heretofore issued to the Respondent or its assignors or predecessors for the discharge of wastes into the said receiving waters, be and they hereby are modified to refer and relate to this Order, and as so amended said permits are continued.

DATED: Albany, New York
October 3, 1966

TO: Bethlehem Steel Corporation
Attn: Pres. or Vice Pres.

s/s
HOLLIS S. INGRAHAM, M.D.
Commissioner of Health
of the State of New York

* * *

STATE OF NEW YORK
DEPARTMENT OF HEALTH
Regional Office
125 Main Street
Buffalo, New York 14203

Form Letter Sent to All Municipalities and Industries listed as pollutors.

R. D. Hennigan

Gentlemen:

The records of the New York State Department of Health list you as discharging to and polluting the waters of New York State.

It is the policy of the New York State Department of Health that all pollutors be under a legal timetable for the abatement of pollution. The method for the accomplishment of this abatement is the issuance of the Commissioner's Order, which orders the pollutor to cease and desist polluting by a specific date, unless an approved pollution abatement program is in force, which schedule is included in the Order.

It may be that some of the steps outlined in the attached specimen order have been accomplished by you, and in addition some of the steps may be unnecessary. However, this attached order is a general case and is designed to illustrate all instances.

The procedure for issuance of an order is as follows:

1. Notice of hearing is sent out with a copy of the complaint alleging contravention of standards and violation of provisions of Article 12 of the Public Health Law.
2. Negotiations are made between the respondent, County Health Department representative, and

R. D. Hennigan

the State Department of Health representative to arrive at a schedule for abatement, and if possible a stipulation in which the respondent admits and agrees that facts exist on which an order may be predicated and that the order may be made, filed and served.

3. A hearing is held and, in the event that the respondent agrees to stipulate, the stipulation is entered into the hearing record and the hearing is closed. If the respondent does not agree to a stipulation, an evidenciary hearing is held, the Department presents its evidence, the respondent presents its answer and evidence, and the hearing is closed.
4. In a stipulative proceeding, the order is signed by the Commissioner and served on the respondent. For an evidenciary proceeding, the hearing officer reviews the record, makes findings of facts and submits this to the Commissioner for his decision and, if favorable to the Department, issues an order.

It is not necessary for persons who recognize that they have pollutional problems to wait until such time as they receive formal notice from the Department of Health to appear for a hearing. They may, at any time, come forward, enter into a stipulation and a proposed order. Subsequent to their request to enter into such stipulation, notice of hearing will be issued and the stipulation can then be signed and the order entered.

It is hereby requested that you prepare a time schedule consistent with the magnitude of your problem, and we will arrange to meet with you to agree upon a stipulation and proposed order to obviate the necessity for a formal evidenciary hearing.

Please advise us by June 15, 1966 of your intentions and, at that time, an arrangement will be made for a meeting of the interested parties.

Very truly yours

s/s John S. Tygert, P.E.
Project Engineer
Water Pollution

Att.

Endorsed: LaVerne E. Campbell, M.D.
Regional Health Director

* * *

R. D. Hennigan

Bethlehem Steel Corporation

Lackawanna Plant

3555 Lake Shore Road

Buffalo, New York 14219

June 9, 1966

State of New York Department of Health

Regional Office

125 Main Street

Buffalo, New York

Gentlemen:

Please refer to your letter of May 27, 1966, in which you request a time schedule for the abatement of water pollution at the Lackawanna Plant.

We wish to emphasize that the Bethlehem Steel Corporation will cooperate with all authorities in the establishment of an approved pollution abatement program.

As a matter of information, the Lackawanna Plant has already started on the installation of a sanitary sewage system and expects to complete it in 1968 at a cost of over $3,000,000. Also, an outside engineering firm, which specializes in steel plant water and waste problems, has been employed to make an engineering survey of the Lackawanna

Plant effluents, and recommend such facilities as may be necessary to meet present day pollution abatement requirements. This phase of the program should be completed this year, and a tentative time schedule for the several program steps would be as follows:

1966 - Complete the present engineering study.

1967 - Review the design and do the detail engineering.

1968 - Select contractors and start construction.

1969, 1970 and 1971 - Construction to continue in steps.

As you know, the improvement of the waste water discharges in an existing steel plant is a complex problem involving large quantities of water and many processes. The Lackawanna Plant normally pumps about 300,000,000 gallons of water per day from the lake, a large part of which is reused. This amount is about the same as that for the entire City of Buffalo.

We would like to arrange a meeting with you at your convenience with a view toward developing, if desired by you, an agreeable stipulation and proposed order. Arrangements for this meeting can be made through L. I. Dickinson, Fuel Engineer, Lackawanna Plant.

R. D. Hennigan

Yours very truly,

BETHLEHEM STEEL CORPORATION

S/S

R. S. Bennett

General Manager

bhk

* * *

STATE OF NEW YORK : DEPARTMENT OF HEALTH

--X

In the Matter of Alleged Violation of Article 12 of the Public Health Law by the

BETHLEHEM STEEL CORPORATION,

Respondent,

NOTICE OF CONSOLIDATED HEARING

--X

In the Matter of the Consideration of such Action as should be Taken in Respect to Continuation, Modification or Revocation of any and all Permits issued to

BETHLEHEM STEEL CORPORATION,

Respondent,

and its Predecessors or Assignors for the Discharge of Sewage and/or Industrial Wastes and Other Wastes or the Effluents thereof into the Waters of the State.

--X

It having been alleged and it appearing to the Commissioner after investigation that the BETHLEHEM STEEL CORPORATION is and for many years has been discharging organic and inorganic matter consisting of untreated and partially treated industrial wastes and other wastes comprising steel mill wastes among other materials, into the Smoke's Creek and South Ditch which matter has caused and causes readily visible sludge deposits and settleable solids in the waters thereof and also contributes to conditions in contravention of the standards adopted, established and assigned respectively for and to the downstream waters all sine August 2, 1966 in violation of ^{s} 1220 of the Public Health Law,

AND it further appearing that it may be necessary or desirable for the abatement and prevention of the pollution of the waters of the State to revoke or modify, pursuant to § 1210 of the Public Health Law, any permit or permits for the discharge of sewage or wastes or effluents thereof into the waters of the State heretofore issued to the Respondent or its predecessors or assignors,

TAKE NOTICE that you are required to abate all such contravening discharges or to appear by attorney or otherwise in a consolidated public hearing in the above entitled proceedings in Room 159 of the State Health Department Building at 84 Holland Avenue, Albany, New York at 10:00 A. M. on October 7, 1966.

TAKE FURTHER NOTICE that you may cross-examine witnesses against, you, introduce testimony of witnesses and any other probative evidence in your behalf and cause witnesses and documentary evidence to be subpoenaed in your behalf and that the procedures to be followed on said hearing will be governed by statutes and case law in such case made and provided and, in particular, by § § 10, 11, 12-a, 206, 1210, 1240 and 1242 of the Public Health Law, and by Chapter 180 of the Laws of 1965, and by the administrative rules promulgated pursuant to Subd. 2 of § 1210 of the Public Health Law and filed in the Office of the Secretary of State effective November 30, 1965.

TAKE FURTHER NOTICE that in case of your failure to appear, the hearing will proceed in your absence; that a record of all testimony and proceedings will be stenographically taken and transcribed and that copies thereof may be had from the stenographer upon payment of his fees allowed by law;

TAKE FURTHER NOTICE that if the charges alleged, as hereinbefore stated, are sustained, you may be subject to a Commissioner's Order abating the discharges alleged and assessing civil penalties as provided in § 1250 of the Public Health Law and revoking or modifying any permits heretofore issued to you or any of your predecessors or assignors for the discharge of wastes into the waters of the State and you may, in addition thereto, be subject to an injunction and criminal penalties; and

R. D. Hennigan

TAKE FURTHER NOTICE that upon or prior to the return day of this Notice, you shall file with the Commissioner of Health of the State of New York or the Hearing Officer a statement setting forth your position, the answer, if any, to the charges aforesaid made against you and the methods, practices and procedures, if any, which are being taken to prevent polluting discharges into the waters of the State and any other defenses or information pertinent to the case.

DATED: Albany, New York
September 9, 1966

HOLLIS S. INGRAHAM, M.D.
Commissioner of Health
of the State of New York

TO: BETHLEHEM STEEL CORP.
Attn: Pres. or Vice Pres.

By: s/s Dwight F. Metzler
New York State Dept. of
Health
Commissioner's Designee
for Issuance of Notices
of Hearings

* * *

R. D. Hennigan

RESEARCH ACTIVITIES

Identification of Oils and Greases

The State Department of Health contracted with Syracuse University Research Corporation to investigate the possibility of finding identifying characteristics of oils and greases that became involved in pollution situations. If identifiable, these characteristics would assist to locate the source of the pollutant and would facilitate abatement. The final report on this research study will be available soon and will be distributed to the conferees.

During the course of this research study, pollutional systems involving oils in the Niagara River area were studied. The suspected sources of some of this material were in the Lake Erie Drainage Basin.

Phosphate Levels

Plans were initiated to make limited studies of phosphate levels in selected wastewater treatment plants in the Buffalo Region. Based on the experience gained in this effort, the Department will arrange to routinely acquire information on the phosphate levels discharged from treatment works in the Lake Erie basin.

Water Quality Research Symposium on Algae and Related Problems

The annual research symposium to be conducted by the State Health Department on April 19, 1967 will be devoted exclusively to the consideration of algae and related problems. The symposium is co-sponsored by the New York Water Pollution Control Association and the New York Section of the American Water Works Association. A distinguished group of engineers and scientists has been assembled to present the latest information on algae control.

The record of this symposium will be made available to the conferees.

Coxsackie Experimental Unit

In cooperation with the State Department of Correction, arrangements have been made for the construction of a full-scale activated sludge treatment plant equipped with ancillary facilities permitting wide flexibility of treatment. A major objective of the installation is to provide information of the methods of treatment which will produce the most efficient removal of phosphates available for treatment plants operating under conditions typical for New York State. A research grant application is being made to the federal government to support this project.

MULTI-PURPOSE WATER RESOURCE PLANNING

Water quality is one of several areas to be considered in water resource management. The State is moving ahead rapidly in its planning for the total water resource. A multi-purpose water resource planning reconnaissance study of the western New York region was completed August 1, 1966. The Water Resources Commission of the State of New York coordinated the preparation of this study. The western region of New York State is divided into four hydrologic units:

Erie-Niagara (all streams draining into Lake Erie
and the Niagara River)
Genesee River Basin
Lake Ontario West Basin
Allegheny River Basin

The purpose of the study was to evaluate the quantity and quality of the ground and surface water resources within the study area, to assess the present utilization of these resources, to analyze and project the many different water needs of the area to the year 2020 and to present alternative solutions for the orderly development of the total resources to meet present and projected needs. The results of the study serve as guides for subsequent steps of engineering and project implementation.

Existing data and reports from all available sources were utilized. Information from prior studies was reviewed and updated where necessary.

Water uses considered in the study included:

Municipal and Industrial Water Supply
Water Quality Management
Flood Control
Water Based Recreation
Irrigated Agriculture
Conservation of Fish and Wildlife

During 1966 the Erie-Niagara Basin Regional Water Resources Planning and Development Board, established under New York State Water Resources Commission in 1963 and representing Erie, Genesee, Wyoming and Cattaraugus Counties, received detailed reports on sedimentation, chemical water quality, groundwater and surface water hydrology prepared by the U. S. Geological Survey. A report on Future Land Use in the Erie-Niagara Basin was submitted by the Erie and

Cattaraugus County Planning Department. The basic objective of the Board's program is the formulation of a comprehensive plan for meeting the present and future water needs and for the orderly development of the water resources of the Erie-Niagara Basin. The studies conducted by the Board will evaluate the physical potentials of developing the ground and surface water sources of the basin, will identify the costs and benefits of development and will present alternative plans for preservation, conservation and utilization of the area's water resources.

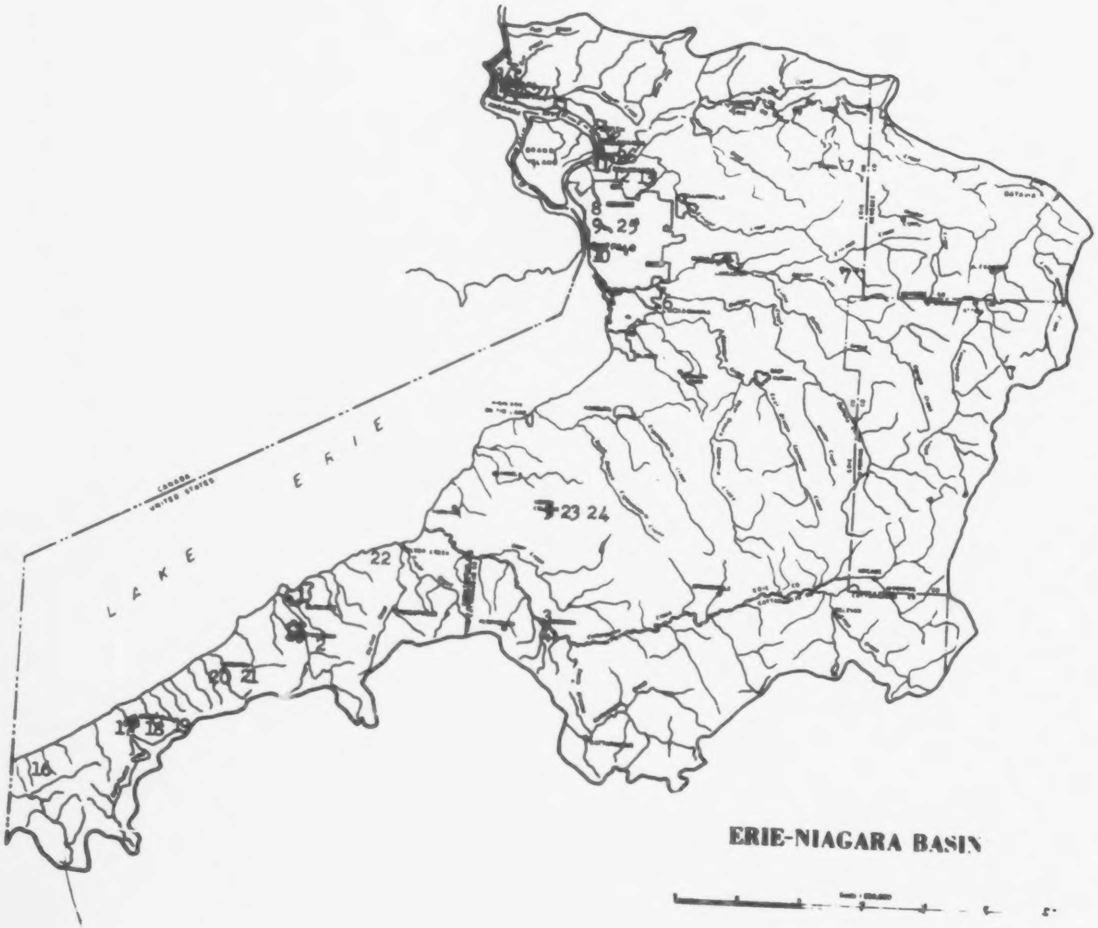
The planning studies assume that stream classification of the New York State Water Resources Commission will be attained, and that all wastes entering a stream will have received at least secondary treatment. Benefits derived for low-flow augmentation in these studies are considered a supplement to, rather than a substitute for, adequate waste treatment.

STATUS OF STATE & FEDERAL CONSTRUCTION GRANT PROJECTS
LAKE ERIE DRAINAGE BASIN, MARCH 1, 1967

Project No.	Name	Percent Complete	Status Comment
		CATTARAUGUS COUNTY	
26	Gowanda (V)	100%	In operation
		CHAUTAUQUA COUNTY	
74	Dunkirk (C)	100%	In operation
76	Fredonia (V)	100%	In operation
82	Fredonia (V)	100%	In operation
245	Silver Creek (V)	85%	Under construction
		ERIE COUNTY	
15A	Alden (V)	100%	In operation
200	Blasdell (V)	100%	In operation
159	Erie County	100%	In operation
92	Erie County Sewer Agency (Cheektowaga, West Seneca)	100%	In operation
219	Springville (V)	100%	In operation

STATUS OF STATE & FEDERAL CONSTRUCTION GRANT PROJECTS
LAKE ERIE DRAINAGE BASIN, MARCH 1, 1967

Project No.	Name	Percent Complete	Status Comment
		ERIE COUNTY (cont'd)	
66	Springville (V)	100%	In operation
71	West Seneca	100%	In operation
193	Erie County S. D. #2 Evans (T) Angola (T)	99%	Operational, several connections to be made
123	Hamburg (T)	99%	High level of infiltration should be corrected
164	Hamburg (T)	99%	Project is integral with above
323	Cheektowaga (T)	0%	Application under review
197	Cheektowaga (T) S. D. #5	99%	In operation. Awaiting final Fed. inspection
257	Lackawanna (C)	20%	Under construction
238	Erie County S. D. #3 (Orchard Park, West Seneca, and Hamburg)	99%	In operation. Awaiting additional documents



ERIE-NIAGARA BASIN

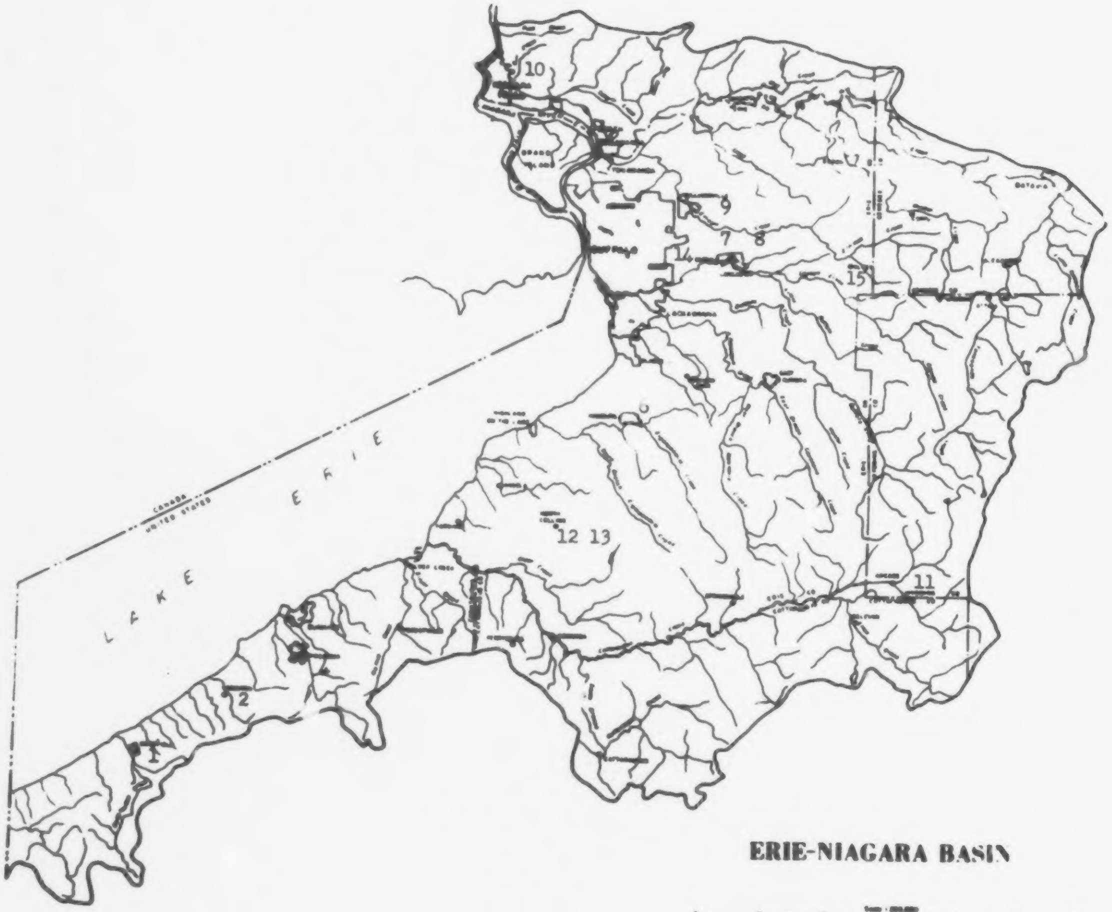
INDUSTRIAL POLLUTERS - LEGAL ACTION

UNDER ORDER

1 Allegany Ludlum Steel, Dunkirk (C)
2 Red Wing Co. Inc., Fredonia (V)
3 Moench Tannery, Gowanda (V)
4 Eastern Tanners & Glue, Gowanda (V)
5 Lawtons Can Co., N. Collins (T)
6 Bethehem Steel Co., Lackawanna (C)
7 Erie County Home, Alden (T)
8 Buffalo Dye Plant, Buffalo (C)
9 Donner Hanna Coke, Buffalo (C)
10 Republic Steel Corp., Buffalo (C)
11 Spaulding Fibre, Tonawanda (C)
12 Continental Can, Tonawanda (C)
13 Ashland Oil Ref., Tonawanda (T)
14 Carborundum Co., Niagara Falls (C)
15 International Paper, Niagara Falls (C)

LEGAL ACTION INITIATED

16 R. C. McAteer, Ripley (T)
17 Welch Grape Juice, Westfield (V)
18 Seneca Westfield Mfd. Co., Westfield (V)
19 Growers Coop. Grp. Plt., Westfield (V)
20 Huntley Mfg. Co., Brocton (V)
21 Welch Grape Juice, Brocton (V)
22 Sheridan Can Co., Sheridan (T)
23 Pro-Canner's Co-op., N. Collins (V)
24 Gro-Packer's Co-op., N. Collins (V)
25 Socony Mobile Co., Buffalo (C)
26 Robert Gair Co., Tonawanda (C)
27 Hooker Chemical Corp., Niagara Falls (C)



ERIE-NIAGARA BASIN

MUNICIPAL POLLUTERS - LEGAL ACTION

UNDER ORDER

1 Westfield (V)
2 Brocton (V)
3 Dunkirk (C)
4 Fredonia (V)
5 Silver Creek (V)
6 Mt. Vernon S.D., Hamburg (T)
7 Depew (V)
8 Lancaster (V)
9 S.D. 1 and 16, Amherst (T)
10 Niagara Falls (C)
11 Arcade (V)

LEGAL ACTION INITIATED

12 North Collins (V)
13 North Collins (T)
14 West Seneca (T)
15 Alden (V)

3/22/67

R. D. Hennigan

ELIMINATION OF E & F STANDARDS AND APPROVAL OF GROUND WATER CLASSIFICATIONS

The State Water Resources Commission adopted a policy declaring that the E and F Classes should be eliminated from the classification system. The growing public enjoyment of the waters of the State for aesthetic and water contact purposes indicates a State-wide need toward higher standards for waters of the State, and removes "sewage and industrial waste disposal" or "navigation" as the best use of any of the waters of the State.

Buffalo River

The Commission authorized the State Health Department to conduct a series of hearings as required by law in order to consider changes in existing classifications. In January 1966, a hearing was held in Buffalo, New York, to consider the upgrading of the lower section of the Buffalo River. Subsequent action by the Commission resulted in the upgrading of this section from Class E to Class D.

Big Sister Creek

In March of 1966, another hearing was held in Buffalo to consider the upgrading of a tributary of Big Sister Creek. Subsequent action by the Commission resulted in the upgrading of this stream section from Class F to Class D.

Cattaraugus Creek

In November of 1966, a hearing was held at Gowanda, New York, to consider a proposal to upgrade a section of Cattaraugus Creek from a Special class with low quality standards to a higher class. The existing Special class had lower quality standards than the D Class standards. Water Resources Commission action is now pending, and the waters are expected to be upgraded.

Ground Water Classification

During the Spring and Summer of 1966, hearings were held throughout the State for the purpose of considering new classes and standards for the State's ground waters. One of these hearings was held in Buffalo, New York. The Water Resources Commission adopted the ground water classification system proposed on March 9, 1967, and authorized the State

Health Department to take the steps necessary to assign these classifications on a State-wide basis.

The new underground classes and standards will provide a basis for the prevention of pollution of the ground waters and will preserve the fresh underground water as a source of potable water. They will also facilitate the correction of any existing pollutional discharges which degrade ground water quality.

RULES AND REGULATIONS FOR WASTE OUTLETS

Chapter 595 of the Laws of 1966 amends Section 1210 of the Public Health Law by adding a new paragraph pertaining to the promulgation of rules, regulations and standards providing for the testing and measuring of sewage, industrial wastes, or other wastes, at the outlet into classified waters of the State. The amended law further provides for the maintenance of a permanent record of the resulting data and periodic reporting of such data to the Commissioner of Health.

The Public Health Law is further modified to restrict the use of existing or new outlets discharging sewage, industrial wastes, or other wastes into classified waters of the State, to those discharges whose outlets are in compliance with the above rules and regulations promulgated by the Department of Health.

The above statute became effective January 1, 1967.

The procedure and schedule in implementing this law is presently contemplated as follows:

1. Finalization, adoption and filing of rules and regulations. Drafts of the rules have been discussed at several meetings with the final version expected within a month. The tests and measurements will be made by owners of the establishments and the analytical data recorded and kept on file at the plant with only summary data required to be submitted to the Department on an annual or semi-annual basis (see attached flow chart on procedure).

2. Under the rules, all outlets with minor exceptions, will have to be registered with the Department.

3. Establishment of patterns tests and frequency for municipal, industrial and commercial establishments.

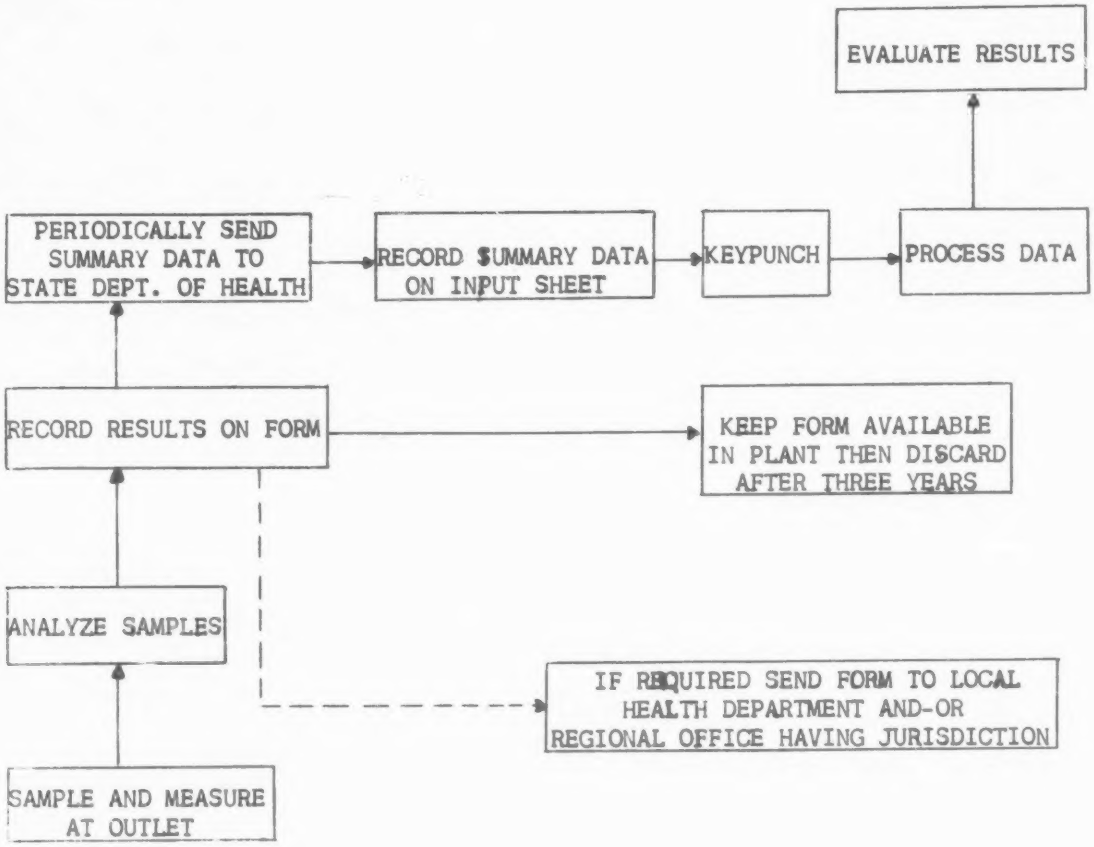
4. Data processing of completed registration forms to establish a basic file.

5. Review and evaluation of individual registration firms and establishment of tests and frequency of each particular establishment and outlet.

6. Initiation of measurement and testing programs for establishments.

7. Initial receipt of summary data by New York State Department of Health. It is anticipated that actual testing will not be initiated until some time in 1968.

TESTING AND MEASURING WASTES
CHAPTER 595 OF THE LAWS OF 1966


EVALUATE RESULTS
PERIODICALLY SEND SUMMARY DATA TO STATE DEPT. OF HEALTH
RECORD SUMMARY DATA ON INPUT SHEET
KEYPUNCH
PROCESS DATA
RECORD RESULTS ON FORM
KEEP FORM AVAILABLE IN PLANT THEN DISCARD AFTER THREE YEARS
ANALYZE SAMPLES
IF REQUIRED SEND FORM TO LOCAL HEALTH DEPARTMENT AND-OR REGIONAL OFFICE HAVING JURISDICTION
SAMPLE AND MEASURE AT OUTLET

R. D. Hennigan

STREAM ASSIMILATION STUDIES IN THE ERIE-NIAGARA BASIN *

Hydrologic investigations conducted by the United States Geological Survey and the State Health Department illustrate the inability of streams in this lake-plain to sustain appreciable low flows. The only stream with any sizable discharge in the basin is Cattaraugus Creek which approaches 60 cfs as an MA7CD/10 yr. drought flow.

The amount of waste discharges that can be assimilated by the receiving stream without contravention of official standards is based directly on the low flow available. A majority of the streams in the basin cannot handle large quantities of waste discharges without additional low flow augmentation.

Major industrial waste discharges are located in the Cattaraugus Creek basin. Institutional discharges occur both in the Tonawanda Creek and Cattaraugus Creek basins. The streams and number of sites investigated are as follows:

* Discussion includes portions of the Niagara River Basin since studies have been completed.

Erie-Niagara Waste Assimilation Capacity Studies

Stream Basin	Outlets Investigated
Buffalo River	1 - Industrial Complex
Buffalo Creek	3
Cayuga Creek	3
Cazenovia Creek	3
Eighteenmile Creek	3
Big Sister Creek	3
Smoke Creek	1
Rush Creek	2
Cattaraugus Creek	16

Present Status

Major pollutional situations occur at Batavia (c), Amherst (T) S.D. #1, Cheektowaga (T) S.D. #5, lower Buffalo River and at the industrial complex in the Village of Gowanda. Relatively minor pollutional situations currently exist at Alden (V), Erie County Home, Akron (V), East Aurora

(V), Hamburg (V), N. Collins (V), Lawton's Canning Company, and the J. N. Adam Hospital.

The City of Batavia has constructed and put into operation an activated sludge type treatment plant designed for 95 percent BOD removals. Proper operation will alleviate the pollutional situation. The Amherst S.D. #1 has restricted residential service to the current 48,000 people with rerouting of additional sewage to its new No. 16 plant on Tonawanda Creek. The Town is also considering revamping its existing treatment facilities. The Cheektowaga S.D. #5 discharges into Scajaquada Creek following secondary treatment. The Creek has been covered and treated sewage effluent constitutes the major portion of stream flow. Those pollution situations described as relatively minor include small municipalities and a few industries discharging into very small streams which have no appreciable sustained flow. Present State policy regarding waste discharges into intermittently dry or low yield streams calls for tertiary treatment and chlorination.

Expected 1980 Situation

Residential development in the basin is anticipated to result in additional waste discharges which create pollutional problems at the Towns of Clarence-Lockport, Elma (T), Lancaster (V), Towns of Orchard Park, Boston and Hamburg, Hamburg (V), and Erie County S.D. #2 (S).

Expected 2020 Situation

By the year 2020, major problems will be expected at the Towns of Clarence and Lockport, Lancaster (V), Erie County S. D. #2 (S), and at the industrial complex in Dowanda (V). Secondary problems will arise at Alden (V), Erie County Home, Akron (V), Alden (T), Evans (T), Lawton's Canning Company and Springville (V).

Tonawanda and Cattaraugus Creeks will be the subbasins called upon to provide the major amount of stream flow for the purpose of waste disposal. Augmentation demands were based on a minimum of 85 percent prior treatment. Eighteenmile Creek and the Buffalo River indicate increasing demands for flow augmentation by the year 2020.

Summary

The assimilation studies show that many of the streams in the basin will receive waste flows substantially greater than the available stream flow. Most significant of these streams are the Tonawanda Creek at the Towns of Clarence and Lockport; Ellicott Creek at Amherst (T) S.D. #1; Scajaquada Creek at Cheektowaga (T) S.D. #5; Cazenovia Creek at East Aurora (T); Cayuga Creek at Lancaster (V); Big Sister Creek at Eden (T) and Evans (T); Erie County S.D. #2 (S); N. Collins (V); 18-Mile Creek at Orchard Park, Boston and Hamburg Towns and Hamburg (V); and Cattaraugus Creek at Gowanda complex.

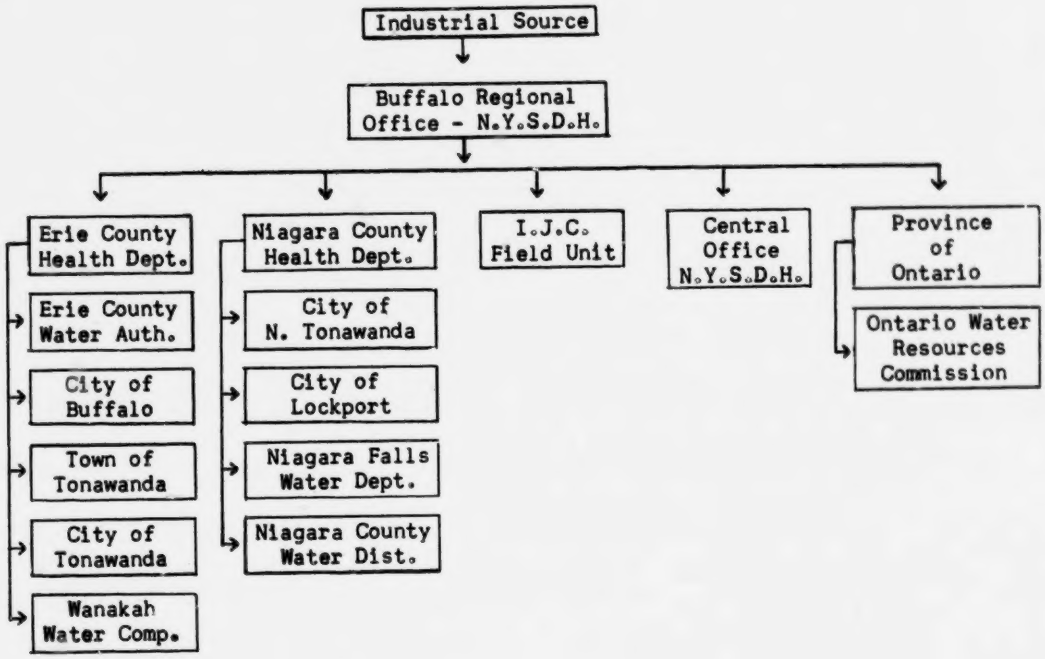
The information developed makes it possible for sound planning and phase construction to take place so that water quality may be maintained as loading increases.

WARNING SYSTEM - NIAGARA FRONTIER

A warning system has been organized by which control authorities are notified by the industry involved of accidental spills or abnormal concentrations of pollutants in plant effluents. This system was instituted in 1958 at the request of the Advisory Board to the International Joint Commission on Control of Pollution of Boundary Waters.

Immediate investigation of such incidents will be made by the Public Health Service survey team stationed in Buffalo and/or State and local Health Departments.

Those notified of the incident take action appropriate to their level of responsibility. The notification scheme is diagramed below.


Industrial Source
Buffalo Regional Office - N.Y.S.D.H.
Erie County Health Dept.
Erie County Water Auth.
City of Buffalo
Town of Tonawanda
City of Tonawanda
Wanakah Water Comp.
Niagara County Health Dept.
City of N. Tonawanda
City of Lockport
Niagara Falls Water Dept.
Niagara County Water Dist.
I.J.C. Field Unit
Central Office N.Y.S.D.H.
Province of Ontario
Ontario Water Resources Commission

SCHEDULE "A"

To Accompany Contract for Comprehensive
Public Water Supply Master Plan Study
CPWS-55

I PURPOSE OF STUDY

The purpose of this study is to develop a master plan for economically integrated projects for present and future water sources, treatment, distribution, storage and future needs within the urbanized and developing areas of ERIE COUNTY.

II STUDY AREA

The study area shall include all of the area within the confines of Erie County.

III MAJOR UTILITY AREAS

The Engineer shall develop one or more major utility areas to satisfy public water supply needs during the study period and develop recommendations for immediate and long-range considerations.

Projects must be developed with regard to the economic, technical and fiscal resources of the entire county study area.

IV RESEARCH OF EXISTING INFORMATION

Prior to beginning any new or original work pertaining to the study, the engineer shall collect, assemble, review and evaluate all existing and available maps, engineering and planning reports, economic, geologic and hydrologic studies. Part of this information may be found at the following offices:

1. The New York State Health Department, Regional Office in Buffalo, New York.

2. The Western Regional Office of the Division of Water Resources of the State Conservation Department located in West Seneca.

3. The Field or Albany office of the United States Geological Survey.

4. Municipal Officials of the towns, cities and villages.

5. The water superintendent or other person in

responsible charge of maintenance for each public water supply system.

6. Office of the New York Fire Insurance Rating Organization.

7. The Erie County Health Department.

8. The Erie County Department of Public Works.

9. The Erie-Niagara Regional Planning Board.

10. The Erie County Water Authority located in Buffalo, New York

It is the intention of this review requirement that any unnecessary duplication of engineering work will be avoided, and it is understood that within the limits of his professional discretion, the Engineer will make use of available valid information to expedite the study process.

V SCOPE OF WORK

A) Mapping: Existing maps shall be used. Where available maps prepared by the Subdivision of Transportation, Planning and Programming, New York Department of Public Works, should be utilized as required. U.S.G.S. maps or copies thereof will be used for the presentation of topographic features and elevations. No instruments surveys shall be made. New maps shall be limited to those necessary for presenting topography, political boundaries, land use, water utilities and other pertinent information. The county has been covered by aerial photographs. Several towns also have 200 ft. scale maps with 5 ft. contours. A list of these towns may be obtained from the Erie County Department of Public Works.

B) Field investigations: Field investigations and inspections shall be made of the major and significant water facilities, in order to evaluate the structures, supplies (yield), storage capacity and main supply, transmission and distribution mains for present and expanded service to the study area. The adequacy of distribution systems shall be evaluated if the system will be used for transmission of water to areas beyond present service areas.

The Engineer shall develop and present a detailed program of inter-connections for all existing water systems to provide the county with maximum flexibility.

The Woodlawn Water Filtration Plant shall be evaluated and recommendations made as to its future use.

The Engineer shall study and show how the existing Buffalo Raw Water Pumping Stations (Massachusetts Ave.) may be connected to the Buffalo Filtration Plant.

Population projections and land use data developed by the Erie- Niagara Regional Planning Board shall be used.

Information on zoning maps and regulation shall be evaluated from the standpoint of present and proposed public water supply facilities. Assessed valuations and taxable real property values shall be studied to provide estimates of annual cost of proposed improvements to the taxpayer.

Location and evaluation of existing and potential water sources within or in reasonable proximity of the study area, especially Niagara County, shall be made, and shall include expected quantity and quality for said sources.

Among others the Engineer shall consider the "Six Upland Sources" mentioned in the "Reconnaissance Studies" performed by Greeley and Hansen and Harza for the New York State Conservation Department.

Reports by the United States Geological Survey on surface and subsurface water sources shall be used where available. Safe Yield studies of several streams are available through the New York State Conservation Department.

C) Studies and Report: The engineer shall evaluate and present in a report form a basic plan for the study area. Although major emphasis shall be given to immediate and anticipated (short-range) need through the next 20 years, tentative projects for a (long-range) 50-year period shall also be made.

This plan shall include, but is not limited to:

Justifiable population and water use projections for a period of 50 years hence and should be presented in both a graphic and abbreviated tabular form. Maps shall be used to show present water use areas and consumption plus 20-year and 50-year forecasts. The engineer shall develop a color scheme or other general distinguishing method to show these forecasts which shall be based on residential, industrial, commercial, recreational, etc., use for the periods. Upon establishing the needs of the area and considering other proposed beneficial water uses the engineer shall develop alternate solutions to provide a practicable public water supply system. These alternates shall be illustrated on maps and shall show the general location of both existing and proposed alternate main transmission pipe-lines, pumping stations, well fields, surface water impoundments, treatment facilities, and storage reservoirs. Quantity and quality of each source and the capacity of all systems shall be shown for each of these alternates. The engineers shall develop on maps a phasing program for utility development over the 50-year period, and in addition a chart to present the identifiable chronological supplementation of plant facilities as water use increases.

For each practicable alternate solution these considerations among others shall be satisfied:

1. An estimate of the total project cost including construction, costs of land acquisition and rights-of-way, engineering, legal and other services, interest during construction, financial service;

2. An estimate of annual expense required for operation and maintenance of the proposed facilities.

The engineers' conclusion as to the most practicable intermunicipal water supply system shall be accompanied by:

a. An estimate of the total project cost, including construction land acquisition and rights-of-way, engineering, legal and other services, interest during construction, financial service;

b. The method of financing;

c. An estimate of annual expense required for debt service, administration, operation and maintenance of proposed facilities;

d. Estimates of annual financial commitments by users and future users to underwrite the proposed facilities for the selected bond maturity;

e. The methods to apportion the annual expenses to users and future users shall be suggested;

f. An estimate of the annual cost for amortization of indebtedness expense, and the apportionment of annual expenses to users and potential users.

The above information shall be presented in tabular form and in sufficient detail to enable the applicant to understand financial plan developed.

The advantages and disadvantages of the primary solution over its alternates shall be included. The engineer shall develop and present a water utility management method in which water service to the project areas may best be provided. It shall include organization, administration, intermunicipal cooperation, apportionment of water resources, general basic policies, manpower requirements, rate structure and an estimate of its annual costs.

Construction cost estimates shall be based on generalized unit prices derived from experience in similar work and not on preliminary design. The ENR project cost or other index shall be utilized to project estimated cost to a future date of construction.

Unit prices utilized shall be stated in the appendix to the report.

It is anticipated that prior to the completion of this study, other State-financed comprehensive water studies will be in progress in Niagara, Genesee, Wyoming, Cattaraugus and Chautauqua Counties. The water requirements of municipalities in these counties shall be reviewed as they affect or are affected by Erie County. The City of Batavia is an example. Maximum cooperation and coordination is demanded and expected among the engineers performing the various studies.

The engineer performing this study shall cooperate with the engineer presently performing the Erie County Comprehensive Sewerage Study and shall make maximum utilization of any information already developed by this study.

VI SUBSURFACE INVESTIGATIONS

The engineers shall collect and evaluate all readily available existing subsurface data in those portions of the study area in which ground water sources are considered. Additional subsurface information, if required by the engineers, shall be obtained by a subcontractor experienced in the general construction of wells. The subcontractor shall work under the direct supervision of the engineers. Prior to any ground water test well exploration or subsurface soil boring work the engineer shall submit a report of the proposed work to the Health Department for review and approval. The report shall include the name of the subcontractor. The proposals and the location, depth, and justification for such subsurface work, or test well, work.

VII LABORATORY ANALYSES

Laboratory analysis as required by the engineer shall be made by a person or firm experienced in and equipped to perform the necessary standard chemical and bacteriological examinations of water, aquifer samples or other samples. The engineer shall select the persons or firms to perform the laboratory testing only after obtaining written approval of the Health Department.

VIII WORK NOT PERFORMED BY THE ENGINEERS' STAFF

All work shall ordinarily be performed by the engineers' staff. Special work, performed by another person or firm, must be by written agreement with the engineer subject to approval by the State and the applicant. The engineers must fully justify the proposed compensation or bases for such compensation.

IX PARTIAL PAYMENTS

Notwithstanding the conditions of Part V - "Payment," Part VI - "State Grant," of this contract, no partial payment will be made to the account of the engineers when the value of the work completed during the period for which the partial payment is requested is less than one thousand dollars ($1,000).

X ENGINEERING REPORT

The engineers shall furnish 150 copies of the report and exhibits based on the results of the studies and investigations, together with such supporting data in the forms of tabulation, charts and drawings as are necessary for a complete understanding of the report. In addition to the report, the engineer shall provide 5,000 copies of a summary of the report not to exceed seven standard typewritten pages in length which illustrates the study area, briefly reviews the purpose of the report, the findings and recommendations.

Two months prior to the completion date of the study and prior to printing the completed report, the engineers shall submit four copies of a draft of the reports to the State Health Department and one copy to the Buffalo Regional Health Engineer for their review and comment.

XI PROJECT COST

The cost for each phase of the scope of the work is as follows:

A.	Mapping	Lump Sum
B.	Field Investigations	Lump Sum
C.	Studies and Reports	Lump Sum
	Total Lump Sum for Engineering Report	
D.	Subsurface Investigation	Unit Price not to exceed
E.	Laboratory Analyses	Unit Price not to exceed
	Total - Unit Price Items	
	Total - Contract price	

The following is an estimated breakdown by classification and man days in substantiation of the above lump sum amounts.

PERSONNEL	RATE	MAN DAYS	SALARY COSTS

XII PROGRESS MEETING

At least every two months or more frequently, as determined by the Buffalo Regional Health Engineer, a meeting shall be held at a time and place to be designated by the Health Engineer.

At these meetings the Study Engineer shall review the progress of the study to date with the Health Engineer, the Conservation Department representative, interested municipal officials and the applicant, and send a summary of the meeting to all parties with an additional copy to the Comprehensive Utility Planning Section in Albany.

XIII PUBLIC INFORMATION MEETING

1. Following the completion of the study and the approval of the report by the Commissioner, the applicant and the engineers shall jointly arrange for and conduct a public information meeting in each county at which the study findings and recommendations shall be presented. Public notice of the time, date and place of the information meeting shall be given at least 15 days prior to the date of the meetings and the meetings shall be conducted at a location which is reasonably convenient for all residents of the county or study area.

2. All costs attributable to the public information meetings shall be borne by the applicant.

3. The applicant agrees to assume complete responsibility for the conduct of the meeting so as to hold the State of New York free of any and all liabilities or claims which may arise out of the conduct of the meeting.

* * *

SCHEDULE "A"

To Accompany Contract for Comprehensive Sewerage Study

WPC-CS-150

I STUDY AREA

The Study Area shall include all municipalities of Erie County.

II PROJECT AREA

The Engineer shall develop one or more project areas where an immediate need for the collection, treatment and disposal of sewage is evident and develop therein recommendations for immediate and long-range considerations. However, the entire study area must always be considered and projects developed consistent with the study area needs.

Early priority shall be given to the study of the needs of West Seneca, Hamburg and Lackawanna; the Towns of Aurora and Amherst and the Village of East Aurora; the Town of Alden; the Town of Boston; and the Town of Grand Island.

Attention shall be given to those special problems or developmental situations, such as the limited assimilation capacity of Erie County stream (e.g., the Ellicott and Tonawanda Creeks); present project plans of the Town of Amherst and other municipalities, with facilities under construction; surcharging of trunk sewers in wet weather; excessive overflows of combined sewers in such municipalities as Buffalo, Tonawanda, Cheektowaga, West Seneca, Hamburg and Evans; excessive ground water infiltration to sewers; the integration into a county plan of recently completed study recommendations such as were made for the Towns of Clarence, Eden, Holland and Farnham.

III SCOPE OF WORK

general topographic features. The Engineer shall supplement available topographic data as determined necessary for the purpose of the study. The proposed work does not envision field profiles for sewers or topographic and bench mark surveys.

B) Field Investigations: The Engineer shall assemble and evaluate all existing and available information and data, including plans, cost estimates and reports relating to existing and previously proposed facilities within the study area.

Erie County is unique in that a wealth of updated significant information is available from the Erie County Departments of Public Works, Planning and Health, the Erie-Niagara Regional Water Resources Planning and Development Board, the State Conservation Department (a multi-purpose water resource study to be completed August 1, 1966), and the New York State Health Department (special public water supply and assimilative capacity studies). Existing and future land use and community population growth data has been developed as a result of studies by the Erie-Niagara Basin Regional Water Resources Planning and Development Board and will be available for use by the Engineer. Field investigations and inspections shall be made of existing municipal sewerage facilities which are of major and significant importance to the successful completion of the study.

Field investigations shall also include, with the assistance of the County and State Health Departments, the location and evaluation of major domestic and industrial waste water outlets; existing and future land use and population growth, the receiving waters, including classification, best usage of the waters and degree of treatment required. The work shall be based on available data on sewage and industrial waste quantities and characteristics, confirmed as considered necessary by the Engineer, and does not contemplate a program of sewer gaugings or analyses of wastes. Such other field investigations as are necessary for the prompt and efficient completion of the study shall be made by the Engineer.

C) Studies and Report: All studies and recommendations shall take into account established classifications of the receiving waters and will include, but not be limited to, the following:

1. A review and critique of the 1956 Erie County Sewerage Study to determine whether the policies, administrative forms and construction programs suggested in that study are appropriate in view of current conditions. Modifying recommendations are solicited.

2. A determination as to which areas of Erie County might economically construct sewage collection and

treatment facilities, together with a general schematic plan of any suggested phase sewage utility development.

3. Recommendations as to the land use management policies including interim and private septic tank treatment systems which should be employed in those areas of Erie County in which public collection and treatment facilities are not economically feasible. Data on surficial geology and soil associations will also be available to the Engineer from the Board.

4. Using information available from the State Conservation and Health Departments and the Erie-Niagara Regional Water Resources Planning and Development Board, make recommendations regarding the low flow augmentation of critical streams.

5. Study the administration of sewerage systems and treatment facilities in the county and develop recommendations for improved procedures and administration.

6. Study the problems of excessive infiltration and storm water flow in sanitary sewers and overloaded combined sewers and make recommendations as to a program which can be followed to correct these problems.

7. Development of a limited number of reasonable alternate solutions to the problem of providing for the present and future collection, treatment and disposal of

sewage within the project area with consideration being given to the entire study area. The Engineers shall consider the water quality and usage of waters flowing into and through Erie County. The Engineers shall also consider the drainage areas of streams outside of the county insofar as waste discharges after secondary treatment may affect the assimilative capacity of the streams in bordering or flowing through Erie County. Opportunities for inter-county cooperation or sewage disposal problems shall be identified for future detailed investigation.

8. Each proposed solution shall be accompanied by basic data and information including, but not limited to, reliable estimates of quantity and characteristic of existing and future sewage and industrial wastes; estimate of effect of proposed waste water discharges on the receiving waters; rational estimates of existing and future population of the area projected for a minimum of five decades in the future; rational estimates of the volume, type, character and strength of industrial wastes or other wastes that may be permitted to connect to the proposed municipal sewerage system or systems; consideration of existing industries within the area; a basic plan (as mentioned in (2) above) showing the location, size and capacity of proposed intercepting sewers, main trunk sewers, pumping stations, force mains, proposed location

and size of sewage treatment plant site or sites, preliminary schematic layout plan showing location, type, size and capacity of proposed treatment plant structures and effluent outfalls; and a description accompanied by adequate illustrations to show how the sewage collection and treatment facilities may be economically altered or enlarged to serve future areas and additional populations.

9. For each feasible alternate solution developed as a result of the comprehensive study of the problems of providing for collection, treatment and disposal of sewage and wastes within the study area, an estimate of the capital costs of construction, including costs of land acquisition and rights-of-way, engineering, legal and other services; an outline of the proposed method of financing; an estimate of the annual cost for operation and maintenance of the proposed facilities; the estimate of annual cost of operation and maintenance and average annual cost to the residents for selected years during the life of the indebtedness. The method used to apportion the annual charges shall be included. Construction cost estimates will be based on generalized unit prices derived from experience in similar work and not on preliminary design.

10. Prepare an evaluation of the effect on surface waters within the county of present combined sewer

overflows and discuss the cost and alternate methods of eliminating, reducing and treating such overflows. The Engineer shall be conversant with the policies of the New York State Health Department and recommendations in this report shall be consistent with their policies.

11. The Engineers' recommendation as to the best and most economical solution for the collection, treatment and disposal of sewage and wastes within the area shall be accompanied by an estimate of the annual cost for amortization of indebtedness which would be required to finance construction of the project.

12. The financial analysis shall be in sufficient detail to enable the applicant to develop an adequate plan for financing.

13. The Engineer shall develop and present methods of organization, administration and management of the sewerage utility system or systems recommended in the report.

D) Subsurface Investigations: The Engineers shall collect and evaluate all existing and readily available subsurface data. Additional subsurface information, required by the Engineers, shall be obtained by and at locations selected by the Engineer. The need for such additional information shall be justified by the Engineer.

E) Laboratory Analyses: Such laboratory analyses, as required by the Engineers, shall be made by a person or firm experienced in the standard analysis of waste water. Particular attention should be paid to the volume, strength and characteristics and variability thereof, of any industrial discharges within the study area.

IV WORK NOT PERFORMED BY THE ENGINEERS' STAFF

All work shall ordinarily be performed by the Engineers' staff. Special work, performed by another person or firm, must be by written agreement with the Engineer subject to approval by the State and the applicant. The Engineers must fully justify the proposed compensation or bases for such compensation.

V PARTIAL PAYMENTS

Notwithstanding the conditions of Part V - "Payment," the Part VI - "State Grant" of this Contract, no partial payment will be made to the account of the Engineers when the value of the work completed during the period for which the partial payment is requested is less than one thousand dollars ($1,000.)

VI GENERAL

Many municipalities within the study area have existing facilities. In making studies within these areas, those facilities which are affected by recommendations made hereunder shall be studied. For purposes of this project, all proposed water pollution control projects having received a grant offer under the terms of Public Law 660 of the 84th Congress as amended or the Accelerated Public Works Act shall be considered as existing. There are, in addition, other facilities and sewer studies undertaken in adjacent areas. Their impact on the Erie County area shall be considered in this report.

VII SOIL STUDY

The Engineers shall consult with those agencies familiar with soil conditions and private subsurface disposal practices in Erie County. Based on the information so obtained, and the Engineers' findings and conclusions, the report shall contain general recommendations as to the suitability of subsurface disposal of sewage in the study area beyond the limits of the project area, as defined herein, until the ultimate recommendations of the study are effected.

VIII ENGINEERING REPORT

The Engineers shall furnish 150 copies of the report and exhibits based on the results of the studies and investigations, together with such supporting data in the forms of tabulation, charts and drawings as are necessary for a complete understanding of the report. In addition to the report , the Engineers shall provide 500 copies of a summary of said report not to exceed five standard typewritten pages in length which illustrates the study area, briefly reviews the purpose of the report, the findings and recommendations. Prior to printing of the completed report and summary thereof, the Engineers shall discuss with the applicant and the State Health Department, local Public Health Engineer and the Bureau of Water Resources Services, the details of the report and summary.

IX TIME ELEMENT AND COORDINATION MEETING

Time is of the essence. The draft of the Engineers' report shall be submitted not later than nine (9) months from the effective date of the contract. Printed reports and summaries shall be submitted not later than thirty (30) days after an approved copy of the draft has been returned to the Engineer. Reports on the following areas shall be submitted within four (4) months of the effective contract date:

Aurora

East Aurora

Amherst

Alden

Lancaster

Coordination meetings shall be held in the Buffalo area with the Engineer, the applicant and the Regional Health Engineer in attendance at least once a month or more frequently as determined necessary by the Regional Health Engineer to discuss the job progress.

X PROJECT COST

The cost for each phase of the scope of the work is as follows:

A. Mapping	Lump Sum
B. Field Investigations	Lump Sum
C. Studies and Report	Lump Sum
D. Subsurface Investigation	Unit Price not to exceed

E. Laboratory Analyses — Unit Price not to exceed

Total - Unit Price Items

Total - Contract Price

The following is an estimated breakdown by classification and man hours in substantiation of the above lump sum amounts.

Personnel	Rate	Man-Hours	Amount
A. Mapping			
Partner			
Project Manager			
Assistant Project Manager			
Engineer			
Assistant Engineer			
Draftsman			
Total Personnel			
Reproductions and Miscellaneous			
Total - Part A			

B. Field Investigations

Partner

Project Manager

Engineer

Assistant Engineer

Total Personnel

C. Studies and Report

Partner

Project Manager

Assistant Project Manager

Engineer

Assistant Engineer

Draftsman

Total Personnel

XI PUBLIC INFORMATION MEETING

1. Following the completion of the study and the approval of the report by the COMMISSIONER, the APPLICANT and the ENGINEERS, shall jointly arrange for and conduct a public information meeting at which the study findings and recommendations are presented. Public notice of the time, date and place of the

information meeting shall be given at least 15 days prior to the date of the meeting and the meeting shall be conducted at a location which is reasonably convenient for all residents of the study area.

2. All costs attributable to the public information meeting shall be borne by the APPLICANT.

3. The Applicant agrees to assume complete responsibility for the conduct of the meeting so as to hold the State of New York free of any and all liabilities or claims which may arise out of the conduct of the meeting.

OPERATION AND MAINTENANCE OF SEWAGE TREATMENT PLANTS
SUMMARY REPORT - FISCAL YEARS 1965-1966
ERIE-NIAGARA DRAINAGE BASIN ONLY

COUNTY	NUMBER OF MUNICIPAL PLANTS	NUMBER OF APPLICATIONS RECEIVED	NUMBER OF APPLICATIONS APPROVED	POPULATION SERVED BY APPROVED PLANTS	POPULATION SEWERED	TOTAL O & M COST	AMOUNT STATE GRANTS	TOTAL AMOUNT STATE GRANTS	NUMBER DISAPPROVED OR WITHDRAWN
1965									
Cattaraugus	0								
Chautauqua	4	3	2	22,600	38,321	104,720	34,761	34,761	1
Erie	45	34	20	861,000	966,657	2,127,668	709,672	709,672	8
Niagara	10	4	2	38,575	143,852	108,685	36,228	36,228	1
Wyoming	2	2	2	4,688	4,688	14,072	4,687	4,687	0
Total 1965	61	43	26	926,863	1,152,918	2,355,145	785,348		10
1966 *									
Cattaraugus	0								
Chautauqua	4	2	2	12,227	38,321	52,684	17,560	52,321	0
Erie	45	6	2	16,841	966,657	32,267	10,755	720,427	0
Niagara	10	0			143,852				
Wyoming	2	1			4,688				
Total 1966	61	9	4	29,068	1,152,918	84,951	28,315		0
TOTAL 1965-1966	61	52	30			2,440,096	813,663		

* Represents only applications approved as of 3/1/67.
Applications for fiscal year 1966 are being received on a continuing basis.

R. D. Hennigan

Field Memorandum Series 66-143

STATE OF NEW YORK
DEPARTMENT OF HEALTH
ALBANY, NEW YORK

September 13, 1966

TO: THE REGIONAL HEALTH DIRECTORS
THE COUNTY AND CITY HEALTH COMMISSIONERS
THE DISTRICT HEALTH OFFICERS

FROM: Mr. Metzler, Environmental Health Services S/S

SUBJECT: Chapter 986 of the Laws of 1965
Disinfection of Treated Wastewaters

Attached for your information are:

(a) Copy of Memorandum from Department Counsel, dated March 29, rendering an interpretation.

(b) Technical Bulletin No. 13.

Counsel's memo will not be transmitted routinely with Technical Bulletin No. 13.

This opinion from Counsel's Office is very basic to the Pure Waters Program. Based on this memorandum the Department will proceed on a policy of requiring continuous disinfection for all waste discharges having coliform content sufficient to exceed the statutory maximum levels.

A Sanitation Manual Item is being prepared on this subject.

R. D. Hennigan

Endorsed: Arthur G. Baker S/S

Associate Commissioner

Attachment

Division of Environmental Health Services - (surplus) - 15

Office of Planning and Procedures - 3

* * *

MEMORANDUM

March 29, 1966

To: Mr. Grossman

Mr. Bogedain

From: Mr. MacHarg

Re: Chapter 986, L. 1965 (Coliform)

This is in response to Mr. Grossman's memo of February 2 and Mr. Bogedain's of February 17, 1966.

Public Health Law § 1205, subd. 5, par. (c), as amended by L. 1965, c. 986, provides in part:

> "5. In establishing such standards, consideration shall be given to the following factors:
>
> *****

(c) The extent to which organisms of the coliform group (intestinal bacilli) or any other organisms of human origin may be permitted in the water, provided that the number of organisms of the coliform group shall not exceed the following prescribed standards for best usages of the waters of the state:"

The statute therefore both establishes specified minimum coliform standards which the Department is required to enforce and requires the Water Resources Commission to include such standards in those standards of quality and purity it is directed to adopt.

If the standards are exceeded in Class AA or A waters, the law does not require that use of water supply intakes be automatically discontinued. A water supply is useable so long as, after any treatment required, it is of satisfactory quality as determined by the Commissioner (Sanitary Code § 5.11).

Similarly, with respect to bathing areas in Class B Waters, the test is whether there is any danger to the public health as determined by usual sanitary survey of the bathing waters.

It appears that the effect of the law is to require year-round chlorination in most cases if this is required to maintain coliform levels below the presscribed maximum levels.

DAM: rh

cc - Dr. Thompson
Mr. Hennigan
Mr. Russelmann
Mr. Salvato

* * *

TECHNICAL BULLETINS PERTINENT TO THE LAKE ERIE DRAINAGE BASIN

Engineering firms practicing in New York State provide a vital link between the State Health Department and the municipalities of the State. While the Department is in constant contact with municipalities regarding utility planning and operation, general needs, regulations, fiscal methods and abatement schedules, it is the consulting engineer who must bridge the gap between need and actual construction of works. In order to keep this important technical intermediary, the consulting engineer, up to date on Department objectives, policy and design criteria, a Technical Bulletin series has been developed.

There follow those technical bulletins pertinent to activities in the Lake Erie Drainage Basin.

R. D. Hennigan

Hollis S. Ingraham, M. D.
Commissioner

DIVISION OF ENVIRONMENTAL HEALTH SERVICES
Meredith H. Thompson, D. Eng.
Assistant Commissioner

BUREAU OF WATER RESOURCE SERVICES
ROBERT D. HENNIGAN, P.E.
DIRECTOR

STATE OF NEW YORK
DEPARTMENT OF HEALTH
84 Holland Avenue
Albany, N. Y. 12208

July 15, 1966

TO: Engineering Firms practicing in New York State

SUBJECT: Summary for Comprehensive Sewerage Studies (Technical Bulletin No. 1)

An outline of suggested three-part "Summary for Comprehensive Sewerage Studies is attached:

Findings - - Major findings developed during the study are listed for quick review by public officials.

Conclusions - - Projects proposed for official consideration are briefly described with their anticipated costs.

Recommendations - - These are the official actions that must be taken to carry out the proposed program.

This outline will serve as a guideline for developing a comprehensive sewerage report summary. Each summary should be developed to reflect conditions and needs of a specific study.

It is suggested that the Summary be printed on colored paper and inserted at the beginning of the comprehensive report.

/s/
Robert D. Hennigan

* * * * *

Bureau of Water Resource Services
New York State Department of Health
July 15, 1966
(Comprehensive Sewerage Study)
Technical Bulletin No. 1

SUMMARY

Findings

(These are suggestions; develop to suit your program)

The Study Areas are:

Study area 1

Study area 2

(etc.)

Predicted populations are:	Present	Future
Study area 1		
Study area 2		
(etc.)		

Anticipated wastewater loadings are:	Present	Future
Hydraulic: (mgd)		
Organic: BOD (mg/l)		
Suspended Solids (mg/l)		
(etc.)		

Anticipated removals will not be less than:

Biochemical oxygen demand ______%

Suspended Solids ______%

(etc.)

These removals are anticipated for ______% of the time. (etc.)

Alternate projects are:

No 1 --

No 2 --

No 3 --

(etc.)

Estimated construction costs (date) and annual operating expenses are:

Alternate	Project Cost	Total Annual Expense
No 1		
No 2		
No 3		
(etc.)		

Other findings

(etc.)

Conclusions

(Adjust and expand to satisfy the needs of your program)

Projects recommended for immediate construction are:

Stage 1

Stage 2

Advantages of this project are: Disadvantages:

1.

2.

3.

Indicated typical annual charges are:

	Assessment	Service Charge
Wastewater plant		
Debt service (principal + interest)		
Operation and maintenance		
Interceptor sewer		
Trunk sewers		
Lateral sewers		
Pump station, force main		
(etc.)		

Projects recommended for future construction are:

Recommendations

(Develop to apply to your program)

These actions are recommended for official consideration:

1. Accept Comprehensive Sewerage Study and Report, by resolution;
2. Investigate advantages of multi-municipal cooperative programs (area of service, apportionment of costs, services charges, expenses, etc.)
3. Adopt a recommended project (or projects) by resolution.
4. Retain a reputable engineering firm with

experience and capability to...

(a) develop an engineering report,

(b) prepare plans, specifications, cost estimates, and contractual documents for construction guidance and control; and

(c) provide construction-compliance services in connection with construction of proposed facilities; and

(d) pre- and post-operational consulting services

5. File a preliminary inquiry for federal assistance for constructing pump stations and force mains, trunk sewers, interceptors and wastewater plants with the appropriate federal agency through the New York State Department of Health.

6. Buy (or obtain a renewable option on) land for a plant site, or for expansion of an existing plant, and for pump stations.

7. File application for interest-free planning advance with U. S. Department of Housing and Urban Development (HUD). (Resolution is required)

8. Authorize engineering firm to prepare plans, specifications, contractual documents, and

final estimates of costs for construction of proposed facilities.

(a) Make sewerage service charge rate study, if needed.

9. *Obtain* County (district) and State Health Department acceptance of the engineering report and approval of plans and specifications for construction.

10. *File* an application with State Health Department to obtain a permit to discharge treatment plant effluent into waters of the State. (Submit with plans, Step 8.)

11. *Adopt* by resolution the plans and specifications for construction of proposed facilities.

12. *File* application for review of plans and specifications with HUD to fulfill requirements for payment of planning grant to client.

13. *Organization* (Develop and spell out according to project and other needs)

    (A) *Sewer District* (where necessary)

    a. *Retain an attorney* experience in organizational procedures to provide legal advice and direction for establishing a district.

    b. *Establish a sewer district* under applicable statutes (Town, Suburban Town, or County Law).

c. Develop and adopt a financing program.

d. Adopt a form of organization for administering, managing, financing and operating proposed facilities.

e. Develop and adopt a sewer-use ordinance with means and procedures for effective enforcement. (This is required for construction-grant eligibility)

f. File application for approval by State Comptroller (Department of Audit and Control) of financial aspects of proposed sewer district.

g. Obtain voter approval, if necessary, by referendum.

h. Hire an executive director or utility manager as soon as possible to guide the program: OR

(B) Water Pollution Control Department

(Village, City, County)

a. Retain an attorney experienced in organizational procedures to provide legal advice and direction in preparing enabling ordinances, etc.

b. Develop and adopt a form of organization for administering, managing, financing, and operating proposed facilities.

c. Develop and adopt a sewer-use ordinance with means and procedures for effective enforcement.

d. Hire a utility manager as soon as possible to guide the water pollution control program;

OR

(C) (Other)

14. Apply for state and federal construction aid assistance.

15. Schedule a series of public meetings to explain and discuss proposed facilities, costs, assessments, service charges, etc.

16. Negotiate and execute temporary and permanent easements (rights-of-way) for construction on private property.

17. Obtain necessary permits and permissions from State Highway, U. S. Corps of Engineers, and other agencies involved.

18. Advertise for bids for construction of proposed facilities.

etc.

b. Develop and adopt a form of organization for administering, managing, financing, and operating proposed facilities.

c. Develop and adopt a sewer-use ordinance with means and procedures for effective enforcement.

d. Hire a utility manager as soon as possible to guide the water pollution control program;

OR

(C) (Other)

14. Apply for state and federal construction aid assistance.

15. Schedule a series of public meetings to explain and discuss proposed facilities, costs, assessments, service charges, etc.

16. Negotiate and execute temporary and permanent easements (rights-of-way) for construction on private property.

17. Obtain necessary permits and permissions from State Highway, U. S. Corps of Engineers, and other agencies involved.

18. Advertise for bids for construction of proposed facilities.

19. File Bids for approval by appropriate state and federal agencies.

20. Award contracts to successful bidder.

21. Accept and approve completed facilities.

22. Hire certified manager-operators for proposed plants before construction of facilities. These employees should be present during construction of plants, etc. Set up plant personnel requirements.

23. Retain an engineering firm to oversee and report quarterly on operation and performance of proposed plants for not less than two (2) years after start-up.

24. Put completed facilities, officially, into operation.

25. Apply for State operation and maintenance funds as further financial assistance.

* * * * *

Guideline to

THE COMPREHENSIVE STUDY & REPORT

Wastewater collection, Processing and Discharge

What it is . . .

(master plan)

Reproduced from
best available copy.

R. D. Hennigan

What it is not . . .

(a preliminary report)

...........A comprehensive study is a "broad brush," long-range projection for wastewater collection and processing requirements. Maintenance of acceptable quality of receiving waters within a drainage basin for an expanding industrialized civilization is its principal aim.

...........It proposes a general conceptual plan of the utility, unified as to boundaries, engineering economics, organization and management, which will concentrate responsibility for controlled design, sound financing, orderly construction and effective performance of wastewater facilities.

.............It is not a preliminary report which describes and justifies an immediate project for construction.

.............A preliminary report for an immediate project usually is developed out of and expanded on recommendations of the comprehensive study.

.............The comprehensive study and report usually is required in connection with an application for construction aid.

.............It is not a design report.....

.............The comprehensive report is to be read, understood and utilized by people as the basis for making fundamental decisions.

DO's

1) Tabulations: Use as much as possible. It's a simple, effective method of presenting data. Side-by-side comparison of data aids interpretation. Comment on and interpret tabulations.

2) Lists: Use listings of criteria, plant facilities, capacities, dimensions, etc. Lists are more effective than inclusion of figures and data in narrative. Comment and interpret.

3) Sketches: Use simplified sketches of systems, plants, processes to "picture" rather than describe in minute detail.

4) Drawings: Make sure lettering is large enough to be easily read after reduction to report-size drawings. Study area; land use; existing facilities; maps; project alternates; flow sheets; profiles; graphs; charts; hydraulic profiles, etc.

5) Interceptor: Define and indicate on drawings.

6) Trunk Sewer: Define and indicate on drawings.

7) Sub-Trunk Sewer: Define and indicate on drawings.

8) Alternate Projects: Layout, describe, cost and evaluate each reasonable alternate. Present in sufficient detail to draw conclusions for recommendations. Justification required. Limit alternates.

9) Assimilative Capacity: Discuss and check out your analysis of receiving water requirements with the Water Pollution Control Section in Albany. Get the latest policy. Get the formal procedures and latests data on the receiving waters.

10) Planning Studies: Look for population predictions, economic development, land use, zoning, etc. Cite references.

11) Plant Performance: State performance that can be granted on reliable day-to-day basis. Show in realistic ranges. Organic and inorganic loads must be reduced to consistent minimums to prevent pollution of public waters. Getting a well-designed, effectively operating plant is primarily the responsibility of the consulting engineer.

..... Emphasis is on daily performanc .....

12) Communication: Keep clients informed during development of studies. Report progress to them. Explain findings. Joint programs require full disclosure for successful implementation.

13) Projections: Coordinate population projection - construction stages - future project costs - financing program.

14) Instruments: Suspect accuracy of meters, instruments, etc., check accuracy before utilizing data.

15) Fundamentals: Put descriptions of processes, technical background, and generalized "textbook" information in boxes (bordered). Keep separate from specifically applicable material for the report.

16) Water supplies: Locate all public water intakes; surface and underground sources. Effect of plant effluent discharges.

DON'Ts . . .

1) Numbers: Don't fill up narrative with numbers. Technical and cost data make reading and comprehension more difficult!

(Tabulate numbers; develop meaningful comparisons; comment; interpret)

2) General Description: Don't include descriptive material, advantages and disadvantages of processes, equipment, etc., which is readily found in textbooks.

(Keep the narrative simple, brief, direct)

3) Assumptions: Don't guess, assume, estimate or "throw in" old data when you can measure and be sure.

(Sample! Analyze! Interpret! Know!)

4) Storm Sewers: Don't design storm sewers in a comprehensive report. They aren't authorized and they are not eligible for aid.

(Stick to domestic wastewater systems)

5) Ancient History: Don't include inapplicable culture and history. It has no bearing on findings and conclusions.

NOW - SECTION BY SECTION . . .

. . . LETTER OF TRANSMITTAL

On one-page letterhead, submit the report to the client and acknowledge cooperation and assistance. Keep it brief.

. . . TABLE OF CONTENTS

List:

- Chapters
- Headings

Subheadings

Appendices

. . . SUMMARY OF FINDINGS

Tell your client - quickly - briefly - in outline form what you found out. He won't read or study the massive report. Include Conclusions and recommendations. To stand alone for publicity use. Print on colored paper.

This is your chance to get the major findings across to the layman.

. . . OBJECTIVE

Outline purposes and needs for comprehensive study. Tell the client what you are going to do.

. . . DESCRIPTION

Designate, describe, locate, and distinguish all study areas. Reference to maps. Make it straight-forward, simple and brief.

. . . SEWERS

Sanitary Sewers: Include design tabulation. Show capacities, gradients, etc. for not less than a 50-year projection.

Combined Sewers: Analyze dry-weather flow capacity. Do not design storm sewers in a comprehensive study. Locate, evaluate and report polluting contributions from overflows. Separate sewers. Correct overflows. Screen and chlorinate overflows. Consider elimination of existing combined sewers.

Use Ordinance: Outline an applicable sewer-use ordinance to control "input" to proposed plant by local regulatory legislation. Include suggested ordinance in appendix.

. . . EXISTING FACILITIES

Inspect, examine, evaluate capacity and condition of existing facilities. Report as being useable or non-useable in connection with proposed projects.

. . . PROCESSING PLANTS

(a) Develop hydraulic and organic design criteria. Base on performance at existing plants whenever possible. Determine total and unit water use. Show in reasonable ranges.

(b) Sample and analyze wastewaters. Report and interpret concentrations. Wastewaters differ radically. Compare water and wastewater analyses; use available water analyses.

(c) Apply "Ten States Design Standards" with care and discrimination. Wastewater problems seldom are comparable. Take individual differences into consideration.

(d) Report industrial wastes volumes and concentrations. Total daily loads. For all significant industries.

(e) Design plants for easy expansion. Space for expansion.

(f) Provide adequate dispersion of plant effluent in receiving waters.

. . . COST ESTIMATES

(a) Date and key to the ENR or PHS construction index for subsequent upgrading of project present costs.

(b) Present prices for immediate proposed projects.

(c) Future prices for deferred proposed projects. Include an index graph for projecting future project costs.

(d) A stage-by-stage construction schedule, a reasonable "picture" of needs timed to anticipated growth.

(e) Substantiate unit prices. (Recent bids)

(f) Realistic cost of all services required.

(g) A contingency with a safety factor. (consider construction as scheduled and steadily rising costs)

(h) Land requirements (present and future).

(i) List or distinguish all facilities considered eligible for aid.

. . . OPERATION AND MAINTENANCE

Spell out the expense requirements. Educate your client in what is needed to underwrite good operation and good plant performance. Indicate full or part-time or shift operation.

R. D. Hennigan

(a) Personnel Annual Expense (sample)

Classification of Personnel	No. of Employees	Annual Salary Range	Total for Budget
Superintendent			
Shift Operators			
Plant Operators			
Laborers			
Chemist			
Lab. Ass't.			
Travel Expenses			
Fringe Benefits			

Note: Fringe benefits include Social Security, Workmen's Compensation, State Retirement, Vacation, etc. Show as a percentage of salaries total.

(b) Non-personnel Annual Expenses (sample)

Item No.	Description	Annual Cost (est'd)
1	Transportation: trucks, etc.	
2	Sewer cleaning	
3	Utilities: Electricity, gas, water, etc.	
4	Repairs to equipment	
5	Repairs to structures	
6	Office supplies, etc.	
7	Telephone	
8	Equipment rental	
9	Chemicals	
10	Fees for services	
11	Insurance (structures, vehicles)	
12		
13	Miscellaneous	
	Total est'd. non-personnel expenses	$

Note: Estimate electric power consumption liberally.

(c) Total O & M Expense Requirement

(a plus b) = $ __________.

. . . FINANCING THE PROJECTS

(a) Financing needs: Long range financing needs are keyed to the predicted construction schedule. Economic status of study areas. Existing commitments.

(b) Capital costs: Tabulate, date and summarize total capital (first) costs of alternates. Put tabulations in an appendix. A graph pictures data effectively for the public.

(c) O & M Expenses: Summarize for alternates from previous data. Predict rise year-by-year. Do not show 1/3 State aid; it's conditional.on good operation and acceptable plant performance.

(d) Bond retirement: Develop bond retirement schedules for alternates. Show payment by assessment (valuation, front-foot, area, unit or benefit), readiness-to-serve charge, and/or service charges. Indicate how service charges are arrived at. Maximum bond payment (principal) must not exceed minimum by more than 50 percent. Assessed valuation and equalization rate. Note critical years. Connection charges.

(e) Income or Revenue requirements: Develop total annual expense requirements, and relate to reliable estimates of needed revenue. Calculate and show approximate service charges. Indicate if based on water use, etc. Reflect local practice and conditions. Number of connections, vacant lots, industries, etc.

(f) Unit investment: Capital cost per person based on present population may be shown. It's a yardstick of financial feasibility.

(g) Unit annual costs: Develop examples of anticipated annual costs for various classes or properties and users. Such examples show benefited property owners what they'll have to pay.

. . . ORGANIZATION AND ADMINISTRATION

Purpose: Provide guidance needed for client or clients to establish a going concern.

(a) Types of organization: County sewer agency; county sewer district, etc. Description. Legal procedures for creating, etc. Applicable State Law. Local laws and charters. Economics of inter-municipal action.

(b) Application: What must be done to implement the recommendations. Inter-municipal arrangements (joint contractual agreement, unilateral action, county or special).

(c) Advantages and disadvantages.

(d) Management: Considerations, scope, duties, etc.

(e) Personnel: Administrative, technical, operating, etc.

(f) Policies: To be adopted, etc.

(g) Proposed organization: Regional or area-wide organizations should be considered to bring about advantages of single-management, coordinated control and orderly expansion of wastewater facilities. County, Town, City, District, etc.

. . . RECOMMENDATIONS (colored paper to attract attention)

A community decision is needed. so - - -

Outline your recommendations as steps to be taken to implement the program:

(a) The best project. Why recommended.

(b) Financing program to consider. Rate schedule

(c) Engineering, legal, financial services needed.

(d) Policies to be adopted to implement the project.

(e) Enabling legislation required. (Local, State, if required)

(f) Organization needed to manage proposed facilities.

(g) Time schedule: design, construction, financing, operation of projects.

(h) Procedures to be followed.

(i) Official actions to be taken.

(j) Other helpful directions for the client.

. . . .

SIGNATURE

DATE: ____________________

SIGNATURE: ________________

P. E. SEAL:

. . . APPENDIX:

(A) Definitions - abbreviations; engineering, financial, etc., terminology.

(B) Subsurface investigations - do not copy. Include copies of original reports probings. Seismic investigations.

(C) Analyses: chemical; physical, bacteriological, etc.

(D) References: technical, legal, economic, governmental, etc.

(E) Cost estimates - list of present unit prices and work included; date; cost index.

(F) Maps and charts.

(G) Sewer-Use Ordinance (Suggested and applicable to a specific community)

(H) Bibliography.

BUREAU OF WATER RESOURCE SERVICES
Division of Environmental Health
New York State Department of Health
December 17, 1965
Revised April 15, 1966

* * * * * * * * * * *

STATE OF NEW YORK
DEPARTMENT OF HEALTH
84 Holland Avenue
Albany, N. Y. 12208

Hollis S. Ingraham, M. D.
Commissioner

Bureau of Water
Resource Services
Robert D. Hennigan,
P. E., Director

R. D. Hennigan

July 15, 1966

TO: Engineering Firms Practicing in New York State

SUBJECT: Review and approval of construction plans and specifications for wastewater collection and renovation facilities. (Technical Bulletin No. 2)

Construction plans and specifications for proposed wastewater projects will no longer be technically checked in detail by the New York State Department of Health.

This policy is:

(a) effective immediately

(b) applies to current as well as future projects, and

(c) anticipates speedier review and approval of engineering reports for proposed wastewater projects.

The new procedure:

1. Engineering reports, prepared in accordance with New York's "Bulletin 1" and "The Wastewater Facilities Report" (BWRS, March 16, 1966), will be received, examined, and accepted or rejected.

(a) Some considerations for acceptance of the project report

... concept and scope of project;

... determination of hydraulic and organic loadings;

... process applicability and flexibility;

... process performance with regard to removal of contaminants;

... piping arrangement (flow sheet);

... protection of receiving waters;

... future expandability of facilities;

... extent of service and project area;

... operating ease and requirements; and

... other pertinent aspects.

(b) Five (5) copies of engineering reports shall be submitted to the Department through its field offices.

(c) A resolution of official accpetance of the engineering report by your client (city, village, town, district, county, etc.) which specifies the project officially adopted for construction must accompany each submission of a report.

(d) The engineering report shall be the basis for developing construction plans and specifications for proposed wastewater projects and approval of construction plans and specifications by the New York State Department of Health. Design and construction of the project shall be in conformance with criteria processes, etc. set forth in the accepted engineering report.

(e) Conformance of plans and specifications with the accepted report will be evaluated by physical inspection of completed facilities and shall be a condition for issuance of a renewable permit to operate the facility and discharge treated effluents to waters of the State.

2. The "Technical Review of Plans and Specifications for Sewage and Waste Treatment Systems," (San. 65) shall be completed, include a statement with regard to conformance with the accepted engineering report, stamped or sealed at the bottom of the first page by the engineer, and submitted to the New York State Department of Health before bids for a project are received.

(a) Five (5) copies shall be submitted.

(b) Form San. 65, is available on request from the New York State Health Department in Albany.

3. Five (5) copies of construction plans and

specifications for proposed wastewater projects shall be submitted, as presently required to the Department before the project is advertised for bids.

These plans will be approved when found to be in conformance with the accepted engineering report.

4. Engineering firms shall bear full responsibility for technical excellence and for preparation of construction plans and specifications in accordance with accepted sanitary engineering practice.

These policies are put into effect immediately to expedite "Pure Waters Program."

/s/ Robert D. Hennigan

Attachment

San. 65 Form, "Technical Review of Plans and Specifications for Sewage and Waste Treatment Systems."

* * *

STATE OF NEW YORK
DEPARTMENT OF HEALTH
84 HOLLAND AVENUE
ALBANY, N. Y. 12208

Hollis S. Ingraham, M.D.
Commissioner

Division of
Environmental Health Services

R. D. Hennigan

Meredith H. Thompson, D. Eng.

Assistant Commissioner

Bureau of

Water Resource Services

Robert D. Hennigan, P.E.

Director

July 25, 1966

TO: Engineering Firms Practicing in New York State

SUBJECT: Piping drawings - Wastewater Plants (Technical Bulletin No. 3)

An isometric line drawing of plant piping should be included with engineering reports and construction drawings for wastewater plants.

This three-dimensional (schematic) drawing should show . . .

(a) line valves

(b) check valves

(c) connections

(d) outlets

(e) pumps

(f) channels and pipes

(g) overflows

(h) drains

(i) heat exchangers

(j) etc.

A distinctive legend for piping should be employed to readily distinguish substances being conveyed.

The isometric of plant piping serves three ends:

(1) The engineering firms' design and check of piping plans is facilitated.

(2) The regulatory agency's review is expedited by having a complete picture of plans and processing flexibility.

(3) The plant manager and operators can display and use this drawing for demonstration and instruction.

Slugdge digestions and flow piping should be given particular attention.

See pages 11 and 12: "Report to Consulting Engineers," January 25, 1966.

/s/ Robert D. Hennigan

* * *

STATE OF NEW YORK

DEPARTMENT OF HEALTH

R. D. Hennigan

84 HOLLAND AVENUE
ALBANY, N.Y. 12208

HOLLIS S. INGRAHAM, M.D.
COMMISSIONER

DIVISION OF
ENVIRONMENTAL HEALTH SERVICES
MEREDITH H. THOMPSON, D. ENG.
ASSISTANT COMMISSIONER
BUREAU OF
WATER RESOURCE SERVICES
ROBERT D. HENNIGAN, P.E.
DIRECTOR

July 25, 1966

TO: Engineering Firms Practicing in New York State

SUBJECT: Engineering Reports
Design Data - Wastewater Plants (Technical Bulletin No. 4)

The attached tabulation is a suggested form for presenting design data for plants in engineering reports.

This tabulation is offered for your use to simplify, concentrate and check design data analyzed under three flow conditions.

Explanation, evaluation and description as needed should accompany this tabulation.

This tabulation is intended to aid engineering firms and expedite examination of engineering reports by the Bureau of Water Resource Services.

See page 11 and 12: "Report to Consulting Engineers," January 25, 1966.

Your suggestions and comments are welcome.

/s/ Robert D. Hennigan

Attachment

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STATE OF NEW YORK
DEPARTMENT OF HEALTH
84 HOLLAND AVENUE
ALBANY, N. Y. 12208

HOLLIS S. INGRAHAM, M.D.
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BUREAU OF
WATER RESOURCE SERVICES
ROBERT D. HENNIGAN, P.E.
DIRECTOR

July 25, 1966

TO: Engineering Firms Practicing in New York State

R. D. Hennigan

SUBJECT: Comprehensive Sewerage Reports
Design Data (plants and sewers) - (Technical
Bulletin No. 5)

Plants

The attached form is suggested for tabulation of plant design data to be presented in comprehensive sewerage reports.

This form is submitted for your consideration and use because of deficiencies and oversights in this respect as revealed by in review of these reports.

Sewers

Similarly, Sewer design data should be presented in standard tabulations such as may be found in textbooks. Tributory areas, capacities, gradients, among other items, should be included to justify sewer sizing.

Your comments and suggestions are welcome.

/s/ Robert D. Hennigan

Attachment

* * *

PROJECT: ____________________ DESIGN DATA

Design Year: _____

5 - Day, 20 C BOD = _________ mg/1

Suspended Solids = ______ mg/1

Design Population: ________ Ultimate; ___________First Stage

Second Stage

Design Flows: Avg ____ mgd = _______cfs = __________ gpm

PROCESS UNITS	DESIGN CRITERIA	PHYSICAL DIMENSIONS	OPERATING PARAMETERS		
			Min. Q= ____mgd	Avg. Q= ____ mgd	Max. Q= ___mgd

(Note: Design data, presented in a tabulation such as this, facilitates design analysis as well as review.)

Bureau Water Resource Services
Division of Environmental Health Services
New York State Department of Health
April 15, 1966

STATE OF NEW YORK
DEPARTMENT OF HEALTH
84 HOLLAND AVENUE
ALBANY, N.Y. 12208

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ROBERT D. HENNIGAN, P.E.
DIRECTOR

July 25, 1966

TO: Engineering Firms Practicing in New York State

SUBJECT: Secondary treatment requirement - Plants in design stage (Technical Bulletin No. 6)

The policy of New York State now requires secondary treatment at all municipal wastewater plants.

This is called to your attention in event your firm is developing plans which propose primary treatment.

Please contact your district or county health department for further guidance.

R. D. Hennigan

/s/ Robert D. Hennigan

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STATE OF NEW YORK
DEPARTMENT OF HEALTH
84 HOLLAND AVENUE
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WATER RESOURCE SERVICES
ROBERT D. HENNIGAN, P.E.
DIRECTOR

TO: Engineering Firms Practicing in New York State

SUBJECT: Critical stream flow for wastewater treatment plant design (Technical Bulletin No. 7)

The base stream flow to be used for determining compliance with receiving-water standards is the minimum average 7 consecutive day low flow with a recurrence interval of 50 years (MA7CD/50 yr) when sufficient gaging records are available.

When records are insufficient, the Department will accept determinations based on 70% of MA7CD for a recurrence interval for 10 years.

This guideline is now in effect.

/s/ Robert D. Hennigan

* * *

STATE OF NEW YORK
DEPARTMENT OF HEALTH
84 HOLLAND AVENUE
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DIRECTOR

July 25, 1966

TO: Engineering Firms Practicing in New York State

R. D. Hennigan

SUBJECT: Plant Performance vs. Plant Design (Technical Bulletin No. 8)

Engineering firms are encouraged to provide continuing surveillance, measurement and evaluation of wastewater plant performance (under contractual agreement if necessary) for a period of two years after start-up of a new plant.

Quarterly reports indicating removals of contaminants under varying concentrations and flows should be prepared to develop factual comparisons of design vs. actual operating parameters. These should be submitted to client and to health departments

Recommendations for improvement of processing practices and other aspects of operation should be made.

/s/ Robert D. Hennigan

* * *

STATE OF NEW YORK
DEPARTMENT OF HEALTH
84 HOLLAND AVENUE
ALBANY, N. Y. 12208

HOLLIS S. INGRAHAM, M.D.
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DIVISION OF
ENVIRONMENTAL HEALTH SERVICES

R. D. Hennigan

Meredith H. Thompson, D. Eng.
Assistant Commissioner
Bureau of
Water Resource Services
Robert D. Hennigan, P.E.
Director

July 25, 1966

TO: Engineering Firms practicing in New York State

SUBJECT: Plant Operation Manual
Wastewater plants (Technical Bulletin No. 10)

A plant operation guide should be developed for each specific wastewater facility and submitted to the client.

The guide should:

1. describe all processes, facilities and equipment;
2. present methods of operation and adjustment for flexibility in processing;
3. set forth safety considerations;
4. recommend specific operating procedures to maximize removal of contaminants;
5. give such technical guidance as may be necessary for proper instruction of plant supervisors; and

6. include specific data as necessary.

/s/ Robert D. Hennigan

* * *

STATE OF NEW YORK
DEPARTMENT OF HEALTH
84 HOLLAND AVENUE
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WATER RESOURCE SERVICES
ROBERT D. HENNIGAN, P.E.
DIRECTOR

July 25, 1966

TO: Engineering Firms Practicing in New York State

SUBJECT: Wastewater Plants - Effluent Diffusion Facilities (Technical Bulletin No. 11)

Plans for proposed wastewater plants should include facilities for diffusing and mixing treated effluents with receiving waters.

Diffusion facilities should be:

(1) located in the stream bed so as to be submerged at low flow.

(2) structurally protected against erosion, displacement and sedimentation; and

(3) designed to mix effluents and receiving waters thoroughly.

Diffusion is indicated to make best use of available assimilation capacity.

Shoreline outfalls will not be accepted.

/s/ Robert D. Hennigan

* * *

STATE OF NEW YORK
DEPARTMENT OF HEALTH
84 HOLLAND AVENUE
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R. D. Hennigan

WATER RESOURCE SERVICES
ROBERT D. HENNIGAN, P.E.
DIRECTOR

July 25, 1966

TO: Engineering Firms practicing in New York State

SUBJECT: Process Equipment Data Sheets - Wastewater plants (Technical Bulletin No. 12)

Equipment manufacturer's brochures, data sheets, maintenance procedures, parts catalogue for installed equipment, name and address of local sales representative, etc., should be assembled in a binder and presented to the plant manager.

Three (3) copies of the binder should be presented.

Plant managers and operators should be aware of proper equipment maintenance procedures which contribute to process reliability.

/s/ Robert D. Hennigan

* * *

STATE OF NEW YORK
DEPARTMENT OF HEALTH
84 HOLLAND AVENUE

ALBANY, N. Y. 12208

HOLLIS S. INGRAHAN, M.D.
COMMISSIONER

BUREAU OF
WATER RESOURCE SERVICES
ROBERT D. HENNIGAN, P.E.
DIRECTOR

August 31, 1966

TO: Engineering Firms practicing in New York State

SUBJECT: Definitions of Primary, Intermediate, Secondary and Tertiary Treatment for Pure Waters Program (Technical Bulletin No. 14)

At the request of Health Department personnel, consulting engineers and lay persons, the Bureau of Water Resource Services has adopted the indicated definitions for usage in implementing the Pure Waters Program.

It is intended that these definitions yield a word-picture to describe essentially a variety of physical, chemical and biological processes used, severally or jointly, in the field of liquid waste treatment.

These definitions do not supersede or alter present Department policies which are:

(1) to insure that waste discharges do not contravene established receiving water

standards;

(2) to examine each proposal on the basis of its individual merits;

(3) to consider each proposal in light of existing conditions and those of the foreseeable future;

(4) to review waste treatment proposals for administrative, technical and fiscal soundness;

(5) to maximize plant efficiencies and pollutant removals within technical and fiscal limitations;

(6) to encourage the development of newer methods of treatment;

(7) to establish plants which are versatile in operational capability.

The general policy of the Department is to maximize treatment at a plant and not to rely solely on stream assimilative capacity.

Accordingly, these definitions are adopted for utilization in the Pure Waters Program.

Primary Treatment - shall mean a process or group of processes removing substantially all (i.e. greater than 90%) floatable and settleable solids in a raw waste and accomplish removals of Suspended Solids in the range of 40-60%. Removal of Biochemical Oxygen Demand is incidental in Primary Treatment.

Intermediate Treatment - shall mean a process or group of processes removing or capable of removing substantially all (i.e. greater than 90%) floatable and settleable solids in a raw waste and accomplish removals of Suspended Solids in the range of 60-75% and Biochemical Oxygen Demand up to 75%.

Secondary Treatment - shall mean a process or group of processes removing or capable of removing virtually all (i.e. greater than 95%) floatable and settleable solids in a raw waste and accomplish removals of Biochemical Oxygen Demand (5 day, 20°C.) and Suspended Solids in the range of 75-95%.

Tertiary Treatment - shall mean a process or group of processes removing or capable of removing all (i.e. 100%) floatable and settleable solids in a raw waste and accomplish removals of Biochemical Oxygen Demand (5 day, 20°C.) and Suspended Solids greater than 95%.

The purpose of primary treatment is to remove gross floating and settleable solids, both organic and inorganic, in sewage. This is primarily accomplished, in practice, by screening, shredding, sedimentation, and occasionally floatation. These are primarily physical processes.

The purpose of intermediate treatment is to provide a level of treatment between primary and secondary, frequently to assure the meeting of stream standards and/or effluent standards set by regulatory agencies. In practice, this level of treatment is met by addition of chemical agents to the raw waste which enhances sedimentation; utilization of heavily loaded trickling filters; or utilization of certain modifications of the activated sludge process, principally modified aeration.

The purpose of secondary treatment is to reduce suspended, colloidal and dissolved solids in effluents before discharge of wastes to receiving waters. Other purposes are for: (a) treating the effluent so that it is more amenable to disinfection; (b) increasing hydraulic loading, or decreasing solids loading, on further treatment and/or disposal devices; and (c) accomplishing pollutant removals beyond those accomplished by purely screening, shredding, sedimentation (or floatation) devices.

Secondary Treatment is usually accomplished through the utilization of processes such as trickling filtration, conventional activated sludge, oxidation lagoons, aerated lagoons, contact stabilization and extended aeration.

In general, secondary treatment processes are typically biological systems which accomplish a change of state for suspended, colloidal and dissolved materials, primarily through the biological oxidation of unstable organics in the waste. Chemical precipitation of certain industrial wastes (low in Biochemical Oxygen Demand) and Chemical Oxygen Demand and high in Suspended Solids) may produce equivalent removals.

The purpose of tertiary treatment is to provide high levels of treatment for achieving clarity of effluent. The term implies utilization of advanced treatment methods for specific purposes, the ultimate being the production of potable water. Such advanced waste treatment methods may be sand or diatomaceous earth filtration, ion exchange, carbon absorption, electri-dialysis and so forth (many of these physical-chemical processes are still in a developmental stage).

These definitions are intended to apply to all liquid waste discharges, including industrial wastes, as they are appropriate. Where Biochemical Oxygen Demand and Suspended Solids are not involved, requirements for removal or reduction of objectionable constituents will be based on fiscal and technical considerations.

Generally, industrial waste treatment requirements will be based on the following items for maximum reductions:

R. D. Hennigan

a. acids and alkalies

b. oil and tarry substances

c. phenolic compounds and other organic chemicals that contribute to taste and odor problems.

d. ammonia and other nitrogenous compounds

e. phosphorous compounds

f. suspended material

g. toxic and highly colored substances

h. oxygen demanding substances

i. excessive heat

j. foam producing compounds

k. other materials which detract from the recreational uses, esthetic enjoyment, or other beneficial uses of water.

/s/ Robert D. Hennigan

* * *

STATE OF NEW YORK
DEPARTMENT OF HEALTH
84 HOLLAND AVENUE
ALBANY, N. Y. 12208

HOLLIS S. INGRAHAM, M.D.
COMMISSIONER

DIVISION OF
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R. D. Hennigan

MEREDITH H. THOMPSON, D. ENG.
ASSISTANT COMMISSIONER
BUREAU OF
WATER RESOURCE SERVICES
ROBERT D. HENNIGAN, P.E.
DIRECTOR

September 15, 1966

TO: Engineering Firms Practicing in New York State

SUBJECT: Professional Engineer's Seal and Signature
Reports, Plans, Specifications
(Technical Bulletin No. 15)

All engineering documents, to be legally authentic, must have the seal and signature of the professional engineer responsible for planning or design.

The documents without professional engineer's seal and signature will be returned. This results in unnecessary delay.

Please make sure all copies of reports, plans, specifications have the professional engineer's signature and seal on the title page at least before submission to the Department.

/s/ Robert D. Hennigan

* * *

STATE OF NEW YORK
DEPARTMENT OF HEALTH
84 HOLLAND AVENUE
ALBANY, N.Y. 12208

HOLLIS S. INGRAHAM, M.D.
COMMISSIONER

BUREAU OF
WATER RESOURCE SERVICES
ROBERT D. HENNIGAN, P.E.
DIRECTOR

September 15, 1966

TO: Engineering Firms Practicing in New York State

SUBJECT: Wastewater Collection and Treatment Systems
Sewer Extensions (Technical Bulletin No. 16)

Sewers are being extended indiscriminately without reference to additional loading of treatment plants. This contributes to pollution of receiving waters through hydraulic and organic overloading and reduced removals.

To combat this abuse, these objectives should be pursued:

1. Sewerage system map -- each city, village, and town and county sewer district should have a master sanitary sewerage system map, showing manholes, (surface and ground elevations) existing sewers (length, diameter and gradient),

pump stations, all points of overflow to public waters, and other pertinent data.

2. Sanitary sewer extensions should be planned at least ten (10) years in advance and indicated on the master sewerage map. Boundaries of service areas must be shown.

(a) If the map is filed with the State Department of Health (and kept up to date), review and approval of construction plans and specifications for sewer extensions will be expedited.

(b) Storm water and infiltration must not be permitted to enter sanitary sewers. Roof drains, celler drains, catch basins, etc., are costly abuses.

(c) Sanitary sewers must be separate sewers.

(d) Extensions of combined sanitary and storm sewers will not be approved as these result in discharge of untreated wastes to public waters.

3. Wastewater plants - hydraulic loading

(a) Sanitary sewers and the wastewater plant must be considered inseparable parts of a 'total' sewerage system. The system should be under control of one authority.

(b) Hydraulic loading on the wastewater plant should be measured and evaluated on a continuing basis. This should be referred to the service area and length of sewers in use, and interpreted regularly. The effect of growth, sewer extensions, and other factors contributing to wastewater hydraulic loading at the plant should be evaluated regularly.

Overloading may be prevented by

(a) restricting sewer extensions, etc., or

(b) enlarging plant processing capacity.

4. The policy of the State Health Department is to reject sewer extension projects which propose, in effect, wastewater treatment plant overloading. Temporary overloading may be tolerated only if the municipality is prepared to, and does, stipulate to a time schedule for construction of expanded treatment facilities. Failure to adhere to such a time schedule will be considered as grounds for the disapproval of any proposed sewer construction.

5. References

(a) Village law, Article II, Sewers Section 260

(b) General City Law, Article 2A, Section 20, Paragraph 7

(c) Town Law, Article 12, Section 192

R. D. Hennigan

/s/ Robert D. Hennigan

* * *

STATE OF NEW YORK
DEPARTMENT OF HEALTH
84 HOLLAND AVENUE
ALBANY, N. Y. 12208

HOLLIS S. INGRAHAM, M.D.
COMMISSIONER

BUREAU OF
WATER RESOURCE SERVICES
ROBERT D. HENNIGAN, P.E.
DIRECTOR

September 2, 1966

TO: Engineering Firms practicing in New York State

SUBJECT: Wastewater plants -- Exhibits for Engineering Reports (Technical Bulletin No. 17)

Engineering reports should include, as a minimum, these illustrations:

1. Site plan, showing topography, general elevations, point of discharge, flood limits, location of proposed facilities, unusual conditions, etc.

2. Flow sheet, showing all process units, piping,

controls, volume of liquid and sludge fractions, recirculation, and other factors to predicted removals of objectionable contaminants.

3. Hydraulic profile, showing gradients for minimum, average and maximum flows through proposed wastewater facilities. Gradients should indicate predicted water surfaces in conduits, tanks, chambers, process units, etc. (Hydraulic restrictions should be eliminated; and required freeboard shown).

Hydraulic gradients must reflect conditions at the plant and submerged outfall during flood stages.

(Backflow requirements should be anticipated.)

4. Otner exhibits should be utilized as needed.

/s/ Robert D. Hennigan

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84 HOLLAND AVENUE
ALBANY, N. Y. 12208

HOLLIS S. INGRAHAM, M.D.
COMMISSIONER

BUREAU OF
WATER RESOURCE SERVICES
ROBERT D. HENNIGAN, P.E.
DIRECTOR

R. D. Hennigan

October 15, 1966

TO: Engineering Firms Practicing in New York State

SUBJECT: Engineering Reports,
Wastewater Facilities,
Application to Project Needs
(Technical Bulletin No. 18)

The "Wastewater Facilities Report," issued by the Department, March 16, 1966, is an all-inclusive checklist of items, information and format that should be included in an engineering report. This checklist was developed to aid private firms and public agencies in the development of high-caliber engineering reports. Such reports are indicated to better serve clients and anti-pollution efforts of the Department.

Engineering reports are, by implication, 'preparatory,' 'advisory' and 'exploratory' to adopting, financing and proceeding with a public-works project.

A report may be called "A Preliminary Report," "A Feasibility Report," "A Design Report," "A Technical Report," etc.

A comprehensive study is a 'preliminary' report with major emphasis on service and economy by master planning.

These are but titles variously used, variously preferred -- and often not exactly reflective of contents or objectives of a report.

The engineering report must be adapted to specific developmental requirements of a particular project. It may be long or short; but the data, findings, conclusions and recommendations must satisfy specific needs and objectives. The report itself must be thorough.

Data presented, coverage, conclusions, etc., are the decision and responsibility of the engineering firm. But -- when reports are deficient, however, in scientific data, interpretation, etc., they may be expected to be returned for further professional development.

/s/ Robert D. Hennigan

* * *

STATE OF NEW YORK
DEPARTMENT OF HEALTH
84 HOLLAND AVENUE
ALBANY, N. Y. 12208

HOLLIS S. INGRAHAM, M.D.
COMMISSIONER

BUREAU OF
WATER RESOURCE SERVICES
ROBERT D. HENNIGAN, P.E.
DIRECTOR

R. D. Hennigan

TO: Engineering Firms Practicing in New York State

SUBJECT: Data Required for Waste Assimilation Capacity Determinations, Engineering Reports, (Technical Bulletin No. 19)

A. Engineering reports should include these data in tabular form to facilitate evaluation of waste assimilation capacity of receiving waters:

1. Receiving stream index and mileage point.
2. Waste discharge identity.
3. MA7/CD/50 yr. upstream flow available.
4. Dilution water quality: BOD_5 (mg/1), Temp. (°C), D.O. (mg/1).
5. Stream classification.
6. Proposed treatment efficiency (% BOD).
7. Waste characteristics - design hydraulic flow, influent BOD_5 effluent D.O., total organic loading (including industrial contribution if any).
8. Existing discharges upstream or downstream which might affect proposed discharge, and appropriate loadings.

9. Assumed, or measured "f" factors, if available, $(f = \frac{K_2}{K_1})$ and bases of assumption.

B. *Assimilative capacity* analysis must assess multiple discharges, location of outlets and other pertinent considerations.

The equivalent of "Secondary" treatment must be considered the minimum for removals, except for unusual circumstances.

C. *Computer programs* in the Albany office may be effectively utilized to:

(a) Preview a specific waste loading situation to appraise its needs limitations; and

(b) To verify waste assimilation calculations, *when these data are reliably investigated and presented* in the engineering report.

This will facilitate review of reports and minimize requests for additional data.

Waste assimilation calculations should show reference source of equations and methodology followed to develop.

/s/ Robert D. Hennigan)

* * *

MR. HENNIGAN: That concludes my report, Mr. Chairman.

MR. STEIN: Are there any comments or questions?

Do you have some, Mr. Lyon?

MR. LYON: Well, it was really an aside, off the record.

(Off the record.)

MR. EAGLE: Mr. Chairman, just for a point of information, without reading a lot of material. I would like to ask this generally.

What is Class D?

MR. HENNIGAN: Class D has as its main objective the maintenance of a fish population stream with a minimum dissolved oxygen at any time of three parts per million, plus other standard criteria with reference to settleable solids, pH requirements, and so on.

MR. POOLE: We want to know what kind of fish.

MR. HENNIGAN: If I were a fish biologist, I could tell you. What can survive when you maintain three parts per million of DO, plus no other deleterious substance. I think it does not include trout. That is about as far as I would go.

MR. STEIN: In other words, you go down to three parts per million?

MR. HENNIGAN: Yes, as of now, three parts per million DO.

MR. STEIN: That is a real minimum count. There is no --

MR. HENNIGAN: No time sequence involved here. That is the minimum.

MR. STEIN: Generally speaking, you know, we have been with this before. When you deal with a classification like that and a requirement like that, at a minimum of three PPM DO, you may be understating the case, Bob. If you drop down to three at the low point, in almost all cases you will have four or five, and generally five. If you have three as your real low point -- and I see all my biologists looking at me with amused grins -- (laughter) you will probably have a pretty good fish population in there.

MR. HENNIGAN: Right.

MR. OEMING: I am glad to take that back with me, Mr. Stein.

(Laughter.)

MR. STEIN: You might be able to use that in Michigan -- plus no other deleterious substances.

MR. OEMING: Will you remember that when we submit our water criteria? You are going down to three parts per million.

MR. POSTON: He is not a technical man.

(Laughter.)

MR. STEIN: "Once," you said -- once.

MR. OEMING: Even once.

MR. STEIN: Even once.

As I see these requirements, you are going to by and large finish with most of the plants which will be in operation at least in January 1971, and there is only going to be one steel mill waiting until July. That is a pretty big one.

MR. HENNIGAN: That is right.

MR. POSTON: Most of them will be done before 1971.

MR. STEIN: But for all intents and purposes, all the remedial facilities will be in operation by January 1, 1971, except one big steel mill, which is going until July. Is that right?

MR. METZLER: Right.

MR. STEIN: I think that puts the program in perspective, and that does not look too bad to me.

MR. METZLER: Murray, I would like to make a supplementary comment to emphasize what I said before.

These dates mean that people have to be moving now, and they will have to continue to move as fast as they can reasonably be expected to move. We expect to crowd people to that extent.

That is what we were really looking at, rather than to get an optional date, an optimum date, in which we could say, "Well, everybody turns it on today and we have clean water in New York."

MR. STEIN: Do we have any other comments or questions?

MR. OEMING: Well, I guess I have a comment and maybe a question.

Mr. Hennigan, I am wondering what the purpose is of defining primary treatment here on Page 2 in the appendix. I judge that the general policy is not to talk about primary treatment any more. I wonder why.

MR. HENNIGAN: Mr. Metzler says he would like to respond to that question.

MR. OEMING: That's fine.

MR. METZLER: Well, I really feel I should respond to this, because I think if Bob had had his way, or if we had followed Bob's advice, he would not have defined anything other than secondary treatment, from there on up.

I come from that old school where you have to have primary treatment as a part of secondary treatment, and it seemed logical that we were describing facilities that were already in operation, and we were saying these now have primary treatment, and we have to upgrade these to secondary.

We needed some basis for a common understanding of what we were talking about when we said "primary treatment."

MR. HENNIGAN: As an aside to that, actually, in terms of the operation and maintenance program, a good share of the facilities now existing in the State are primary facilities.

One of our rules and regulations on the operation and maintenance program is that, first of all, any primary treatment must provide at least an effective primary treatment. Second of all, they must have entered into a stipulation with the State Health Department on a schedule to provide secondary treatment, so it would be particularly applicable in that situation.

MR. STEIN: Any further questions?

MR. POSTON: Mr. Chairman, I might ask Mr. Hennigan my favorite question, as to whether or not he has any difficulty in obtaining industrial waste information for his open file.

MR. HENNIGAN: I have a feeling that that is a leading question.

(Laughter.)

We covered this in some detail under the registration of waste outlets. I don't know if we are the only State in the United States that has this piece of legislation, but

I have a sneaking suspicion that we are.

In developing this legislation, and also the rules and regulations which will shortly be enacted, we have worked closely with various industrial groups, so that they will know what is required.

What we have done in this State is put this on the books as a legal requirement, and with the full force of law through rules and regulations by the State Department of Health, and the permit not issued to these boys if this information is not furnished.

This has always been a question. Actually, we have had very little difficulty, and in most instances have received all the information that we have requested.

MR. STEIN: Any further comments or questions?

MR. EAGLE: I have a comment.

MR. STEIN: Yes, Mr. Eagle.

MR. EAGLE: I would like to inform Mr. Poston that we have an amendment to the Water Pollution Control Law before the legislature at the present time which deletes this confidentiality clause, and I would hope that Mr. Poston would be a very active lobbyist in our legislature.

(Laughter.)

MR. POSTON: I am restricted from those activities.

MR. STEIN: Our feeling is, the more active a

Federal official is in lobbying in a State legislature, the less chance the bill has to get through.

(Laughter.)

You know, the question that Mr. Poston didn't follow up was not a leading question. That is what we call laying a foundation.

You asked about that primary treatment. If there is anything engineers like to do better than discuss law, it is to prepare a glossary of terms.

(Laughter.)

Are there any further questions or comments?

(No response.)

MR. STEIN: If not, in talking to the conferees, I think I can sense at least a consensus here.

First, I would like to say that all the reports will be received as if read in the record in full. I am not sure we covered the Pennsylvania report, but if we did not, without objection, that will be done.

MR. METZLER: Mr. Chairman, there were two people in addition from the State of New York who had requested an opportunity to be heard. I wasn't quite sure but what you might be moving on to the conclusions.

MR. STEIN: Yes, I was.

MR. METZLER: May I call on them before you actually get to that point?

MR. STEIN: All right. Will you call on them?

MR. METZLER: We would like to ask Mr. John McMahon, who is the Regional Engineer for the Division of Water Resources in the New York Department of Conservation, either to make a statement, or if he has a written one and wants to file it, whatever would be his wish.

STATEMENT OF JOHN McMAHON, REGIONAL ENGINEER, DIVISION OF WATER RESOURCES, NEW YORK STATE DEPARTMENT OF CONSERVATION

MR. MC MAHON: The comments that I would like to make at this time concern the broader nature of water than the specific objective of this particular conference, but it does apply to the Niagara Basin, the area that drains into Lake Erie between Tonawanda Creek on the north and Cattaraugus Creek on the south. For that reason we feel that the information would be of interest to you.

As you know, in New York State, under the laws that were passed in 1959, there was created a law providing for the establishment of a Regional Water Resources Planning and Development Board. The first of these boards was established in this basin in 1963. It is known as the Erie-Niagara Water Resources Planning and Development Board, and I would like to deliver to you this afternoon some concept of what this Board is involved in at the present time.

The basic objective of the program of the Erie-Niagara Water Resources Board is the formulation of a comprehensive plan to meet the present and future water needs and for the orderly development of water resources of this basin. The program, which is in its final phase, will develop alternative plans which will allow for economic and functional comparisons resulting in the selection of a recommended comprehensive plan by the Regional Water Resources Planning and Development Board and the New York State Water Resources Commission. The alternative plans for the Erie-Niagara Basin will include consideration of municipal and industrial water supply, water quality management, water oriented recreation, irrigated agriculture, flood plain management, erosion control and sedimentation, reservoir site potential and other purposes. The planning program includes the evaluation of the potentials of surface and ground water resources within the Basin for beneficial development, conservation and utilization of resources. Great Lakes sources will be evaluated as alternatives where appropriate. Investigations of individual project proposals for plan implementation will be carried out to establish physical feasibility, costs and benefits which will contribute to the selection of initial developments.

J. McMahon

The program is to make full use of the data collected and studies carried out by agencies participating in the cooperative effort. An evaluation of the surface water resources of the Erie-Niagara Basin is being prepared utilizing data developed by the U. S. Geological Survey in their task report on surface water hydrology. A general evaluation of the total sustained yield of ground water resources will be prepared with an appraisal of the probable effects of ground water development on the low flows in critical reaches of surface streams in the basin. Studies include the possibility of artificial recharge of ground water, suitability of ground water resources for low flow augmentation, and other possibilities which may be found worthy of consideration. These studies are based largely on the basic data obtained by the U. S. Geological Survey in their report on ground water resources of the Erie Niagara Basin.

The use of Lake Erie and Niagara River waters is being evaluated principally in the sense of their use as alternatives to inland surface and ground water resources. Included will be an evaluation of the economic and financial costs of pumping for municipal and industrial water supply and irrigation purposes. Other aspects which may influence decisions as to selection of alternative Great Lakes or inland water resources may include possible legal constraints on water use or the economic costs of withdrawals in terms of alternative downstream uses.

Studies of municipal and industrial water supply will be developed through separately administered New York State Department of Health intermunicipal water supply studies for the participating counties. All data collection, surveys, analyses, layouts and cost estimates for treatment, transmission and distribution of municipal and industrial water supply as required for the comprehensive planning will be carried out under the separate studies.

Water quality management studies include the studies of surface water quality already completed by the New York State Health Department, complemented by sewerage utility studies to be undertaken under contracts administered by that Department. The information to be provided under these studies includes, but is not limited to, the identification of reservoir storage requirements for streamflow augmentation corresponding to various levels of waste treatment efficiency above the secondary level, at present and perspective locations of waste contributions to streams in the basin. Relationships of frequency of use to storage volume will be prepared by decades through 2020. Cost estimates for alternative methods of achieving stream quality standards for use in establishing the value of augmentation benefits attributed to multipurpose reservoirs will be prepared. Estimates of the cost of facilities required in addition to the reservoir for performing low flow augmentation such as outfall lines to locations on other streams will also be prepared.

The effects of the water quality behavior of perspective reservoirs as it may affect downstream water uses for fish propagation, recreation and augmentation will also be appraised.

The objectives of water oriented recreation studies for the basin include:

1. The projection of the demand for various types of water oriented recreation by intervals for the period through 2020;
2. the evaluation of monetary benefits which may be reasonably applied to different types of water oriented recreation facilities including artificial lakes and Great Lakes shoreline developments; and
3. estimates of the costs of recreation developments and of those portions of multipurpose projects which are required only for recreation.

The investigations and analyses leading to these objectives are being carried out by the New York State Division of Fish and Game, the Niagara Frontier Park Commission, and the county multipurpose reservoirs will be prepared. Estimates of the cost of facilities required in addition to the reservoir for performing low flow augmentation such as outfall lines to locations on other streams will also be prepared.

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The objectives of irrigated agricultural studies are to:

1. Delineate areas within the Erie-Niagara Basin in which the soils and land are suitable for sustained agricultural irrigation;
2. forecast the rate of market growth for crops acceptable to yield improvements with supplemental irrigation;
3. determine the economic benefits attributable to supplemental irrigation both on a farm basis and on the basin economy;
4. determine the cost of development of supplemental irrigation both on farm and on a project basis exclusive of multipurpose reservoir costs; and
5. to evaluate the adequacy of non-reservoir water sources.

These studies are being carried out with the participation of the New York State Department of Agriculture and Markets, the Extension Service, the United States Department of Agriculture, Soil Conservation Service, and Economic Research Service.

The objectives of flood plain management studies are:

1. To determine the boundaries of flood inundation

for specified recurrence intervals under conditions of future land use;

2. to estimate flood damage risk in monetary terms for alternative structural plan elements;
3. to determine the costs of alternative flood plain land use plans; and
4. to prepare alternative plans for flood hazard alleviation and flood plain land use within the context of a comprehensive plan for water resources development.

These studies are being carried out by the New York State Division of Water Resources and the United States Army Corps of Engineers.

Needs for land and stream bank measures for erosion and sediment control are being studied by the Soil Conservation Service and the United States Geological Survey. Policy guidance for the study is being provided by the Erie-Niagara Regional Water Resources Board and the New York State Water Resources Commission. Close coordination is being maintained among all agencies participating in the study. Information is being made available at intervals in the program at which time the expression of local views and desires is being obtained which influences the direction of activities and the weighing of intangible considerations.

J. McMahon

The objective of the comprehensive plan for the development of the Erie-Niagara Basin is:

1. To encourage the economic and social development of the basin by the creation and enhancement of land and water resource opportunities;
2. to provide a technical basis upon which increased levels of stewardship can be exercised in the management of the basin's water resources;
3. to identify resource development and management proposal justified for implementation during the near future; and
4. to provide and protect resource capability for the satisfaction of long-range competitive economic and social interests.

In conclusion, it is essential to note that the Erie-Niagara Water Resources Board through the New York State Water Resources Commission and its member agencies and in cooperation with Federal and local interests is engaged in the final stage of its planning program to meet the future short and long-term economic and social water needs of this western New York area.

Thank you.

MR. STEIN: Thank you, mr. McMahon.

Are there any comments or questions?

(No response.)

MR. STEIN: If not, thank you.

MR. METZLER: Other than to say I think this is a very fine statement, and it is an example of the type of comprehensive water planning development activities going on in New York State, I have no questions, Mr. Chairman.

MR. STEIN: Thank you very much.

Mr. Metzler?

MR. METZLER: Mr. Chairman, we have one other citizen of New York who would like to be heard. This is Mr. Charles Proudfoot, who is a physicist from Niagara Falls. He has made a hobby of water pollution, and he has a suggestion that he thinks might be helpful to the panel in solving some of the pollution problems of this Great Lakes area, particularly into the Erie Basin.

STATEMENT OF CHARLES B. PROUDFOOT, NIAGARA FALLS, NEW YORK

MR. PROUDFOOT: I think it has become clear today that the nutrients are quite a problem in Lake Erie. If you read between the lines in the reports, phosphorus, which is probably the most offensive nutrient, is not removable by any known way at present. Although we have hopes, there is no big plant that can do it.

The third problem we have and that should be abundantly clear, which has not been brought out, is that we are using Lake Erie as a big sewer pipe.

Now, if you calculate how big a sewer pipe you would need from Detroit, it turns out to be only 20 feet in diameter, with the water running at a mere six miles an hour, which requires very little power.

My thought is that why can't we build a sewer pipe along the southern shore of Lake Erie from Detroit, pick up Toledo, Cleveland, and every other small community in between -- Erie, Buffalo -- and pump this secondary treated water into this 20-foot pipe. It would require pumping stations only about every 100 miles.

They say they take 85 percent and shovel some things out here and there, sometimes 70 percent, pump the rest of it in this pipe, take it down, pick up Buffalo, and for a slight moment dump it in the Niagara River, and then, of course, in a few years, it will be back again and Lake Ontario will be a problem. It is easy to put this sewer pipe, which will be on the bottom of the lake across in back of Niagara Falls, down over it, and build a power plant up there which will pick up enough power to man all the pumping stations along the line, down along Lake Ontario, pick up the sewage, secondary treated sewage, from Rochester and pump it down into the St. Lawrence River.

Now, all the phosphorus and nitrogen compounds that are nutrient will not trouble the river whatsoever. It will be like the Mississippi. It is flushed out and fast-moving, and it seems to me this tertiary treatment that we are all worrying about would be eliminated.

In addition, there is a possibility which I haven't looked into -- I have looked into the power requirements, the size of the pipe and the speed of the water. I think the sewage could be treated in the pipe, which would take about four days. You have the sewage all in one spot from Detroit down to the St. Lawrence, and it could be treated in the pipe by chlorination and aeration, or, conceivably, now that you have got all sewage in one pipe you will want to put a big sewage treatment plant down at the top of the St. Lawrence River and eliminate all the little ones along the way, and have only primary sewage treatment even at Detroit.

Thank you. That is all.

MR. STEIN: Thank you, Mr. Proudfoot.

Are there any comments or questions?

(No response.)

MR. STEIN: If not, thank you very much.

Mr. Metzler?

MR. METZLER: I was just going to say this is a very intriguing possibility. When we get into executive session, I will propose that this is an item that our technical committee -- we were worried about having something for them to do.

Seriously, I would like to have them take a quick look at this.

MR. STEIN: All right.

Are there any further comments or questions?

(No response.)

MR. STEIN: If not, are there any comments before we attempt to start summarizing, because I think the summary on this one might be short and brief, but really good?

(No response.)

MR. STEIN: If we were in an adversary proceeding in a case, I would say, in our parlance at least, we broke through the back of the gates; but in the conference procedure, I think where we have come today is we can see daylight. I can see the end of that tunnel and light where we are going to come out, and I think we are going to have not only a satisfactory, but an eminently satisfactory pollution control program on Lake Erie.

The difficulty with this program has been the kind of problem we face. We have to recognize in discharging wastes into a lake we have much more difficult problems than cities located on swift-flowing rivers or on estuaries.

With the treatment outlined here, and the give or take on points here and there, the five States have come up with pretty uniform requirements for their treatment and the disinfection of the effluent where there is a pathogenic danger.

I think the States also have come up with very, very detailed plans on industrial waste sources. There is only one way to do this, and they have done it. They have gone through plant by plant, source by source, item by item, pollutant constituent by pollutant constituent, and have worked out a plan.

This is not easy. They presumably have done this with the cooperation of the industries concerned.

From what was said here, these fully meet the requirements that we set up at the first two sessions of the conference, and the industrial waste treatment plans are commensurate with the municipal plans.

We also then came to the key question, and, that is, could we accomplish this within a reasonable time schedule?

I think we have done this, and I think the time schedule that I see here is the most realistic that we can come up with in an involved situation like this.

No one has given you a panacea where we are going to clean up every plant on the same day by pressing a button. This is impossible with all the myriad sources in the five States, but between now and the middle of 1971, the bulk of this will be finished in the next few years. There will just be a few left over into 1971.

Between now and then we will have treatment works in operation covering every significant point of discharge.

This is the key point here. When we talk about "significant," that means large and small.

I know Dwight and I used to have this ten or fifteen years ago, when we first started. How big a company or city do you take on, and how small a discharge? We found there was no way to draw the line. You had to take them all.

These States have faced up to their responsibilities. They have every significant discharge included, and realistic plans are set forth for them. I think these fully meet the requirements of the conference.

I think in essence, this is what we can do under known resources and known technology to abate pollution.

Mr. Eagle talked a little bit about the salt and he spotlighted the problem. We do not have all the answers, and this is apparent from our technical report, and the answer on the beaches. You have heard some of the discussion on the nutrients and some of the discussion on what we are going to do with the sludge in the future.

The point is, though, we won't know where we are going to go until we have put in these measures that we know have to be put in.

Now, the question of whether we can open the beaches in Cleveland may be problematic. Once we get the work done, we should be prepared to go ahead with it. We know we cannot open the Cleveland beaches, and I don't mean to single out Cleveland -- you can pick out some of the other cities -- if we permit the pollution to continue unabated. We will stand a fighting chance to open those beaches if we get this done.

I think these measures here will materially assist in cleaning up the waters and, hopefully, in slowing down that eutrophication or aging process in the lake.

So I think the conferees are, as I see it, in a position to have all the five States, and the Federal conferee, endorse the programs of these five States, including the time schedules and the type of treatment proposed.

By the way, when I say that, I might be saying it fast, but this is something that has taken years to achieve. In dealing with a pollution situation such as we have in Lake Erie, probably in its magnitude the biggest single remedial coordinated program that I know of in the whole country and the biggest one that has ever been attempted, the fact that this was done right here I think makes this an historic occasion. I don't think any program that we have done anywhere has reached the magnitude of this.

However, we do recognize because we are dealing with the kind of waters we have in Lake Erie, and we have that precious fresh water resource which has to be preserved, there are many, many very difficult questions raised by the technical report and by the conferees in their questions.

Again, if I gather the sense of the conferees, I think that these questions are related to predicting and going into the future and dealing with an unknown. When we do that, the conferees, I believe, feel they would like to take these questions back with them to their technical staffs and think about them, and just thinking about them will be the important thing.

Within the next few weeks, or next month, and certainly well before June, we will come to an appropriate date and place with the conferees, come up with an agenda on the technical points and the other future points, and get together with the conferees, where we may have to have a full discussion in depth.

If any of you thought this meeting was technical, I wish you could be at that one and try to come up with a direction of where we go in the future.

I think we have taken a great step towards abatement of pollution. I think if you were given any other river system in the country, we probably at this point would have zipped up our briefcases and gone on, but because Lake Erie presents such a tremendous challenge, we are going to have to go further into the technical work.

The Chairman will be in touch with the conferees of the five States, and I hope Mr. Poston will be in touch with them. We will arrive at a mutually agreeable date and place to meet.

Are there any further comments or questions?

MR. POSTON: Mr. Chairman, did you make a schedule?

MR. STEIN: As I look at the schedule here, the schedule is adopted on individual plants, and we can collate those and put those together.

Again, as I understand the schedule, the schedule calls for completion during 1968, 1969 and 1970 of almost all plants, and running in a few cases to the middle of 1971.

As we have put the Michigan schedule in as being approved plant by plant, I think we will do this with the schedules submitted by the other States, and this is the proposal, unless any of the States find any of them unsatisfactory. I did not touch that.

MR. POSTON: What you are saying then is that we would utilize the schedules as provided by the States in their presentations today?

MR. STEIN: Yes, sir.

MR. POSTON: I am very much impressed with some of the schedules. I noted that Pennsylvania had December 1970 for the completion of all of their work; and December 31, 1968, for Indiana; January 1 for Michigan; December 1970 for Ohio, with the exception of one plant which would be in 1971; and New York has, as I just listed, three of the many plants that they have that came in 1971.

I didn't want the impression to be that we were having a schedule ending in 1971, when there has been immense and great progress which will be made prior to 1971.

It is just some of the, I guess you could term them, biggest polluters whom we are going to have to wait on until this 1971 date.

MR. STEIN: That is right.

Again here I think you have to recognize this: In the area we are talking about, you do not have the longest construction season in the country up north here.

Also, you have to recognize that planning and detail plans take about as long as construction. In other words, if it takes you two years to construct, it is going to take you two years of planning work, and that means that if everyone starts now and works diligently without any slippage, we are going to meet this schedule.

The schedule is not designed to give anyone until 1971. The schedule is saying the gun is shooting off right now, and if everyone runs as hard as they possibly can, we can reasonably expect you to finish at these dates. The ones that are finishing in 1970 and 1971 are the big ones that are just going to take that long to complete.

I see no other reasonable way of doing it. What I am proposing is as we have done with the Michigan schedule, submit this now to the Secretary of the Interior and see if he will endorse it. I am very optimistic, since we have unanimous agreement among the five States, that he will endorse these schedules, and this will be a compliance, as far as I am concerned, if this is done with the Federal law as well as the State law.

If we have done that, we have achieved quite a bit in dovetailing both the Federal and State programs.

It has been hard work to get it to this stage, but I think we are at the break.

MR. POSTON: This is a little different procedure, Mr. Chairman, than has usually been used in the enforcement actions.

In other words, generally, you have let everybody have the same date, but I am in agreement that we should move ahead on things that we can at the present time.

MR. STEIN: Sir, I think you are right, but what we have here is a very complicated case.

The advantage of the conference technique is that it permits this. We don't always give everyone the same date.

Of course, when we went to a city like Sioux City, as you recall, Mr. Metzler, or Omaha, where we had one or two or three big sources, you could give everyone the same date. However, when we went to, say, Chicago, we did not have the same date for everyone.

Now, this is even more complex. I have not counted up the sources, but I will bet, given the five States, we run over 100. I think the notion of trying to get 100 sources, big and small, all to finish on the same date, to get the same engineers and the same contractors, and to press a button maybe on top of Niagara Falls and have them all go on at the same time, is a pipe dream. If we are going to do this kind of thing, we just have to get them to feed in one at a time.

MR. METZLER: I wondered if Mr. Poston had something else to suggest here?

MR. POSTON: No. What I was concerned with was the fact that here we have many people making a great effort and accomplishing their waste treatment in a hurry. I don't think we should infer in any way that the small communities were being allowed an extra period of time to accomplish that, but they have made a great effort and a great accomplishment to complete this at an early date.

However, there are some whom because of the big jobs that they have to do, this big pollution load that is a big problem to clean up, we are giving extra time.

MR. STEIN: I look at it in a different way, Mr. Poston.

I believe they all work the same way. Those who are going to finish early have to be thankful that they do not have a bigger problem. That is, it is not going to be as much work or it is not going to cost them as much as the ones who are going to finish later. I think this is true, by and large.

The question here is that we are asking everyone to work at the same pace. The ones that have smaller construction jobs of smaller plants or smaller problems are going to finish earlier.

If we, let us say, ran a dictatorship and had no problem at all, and you picked all the engineering and monetary resources in the whole country and put them on the program, I am not sure that we could achieve earlier dates of completion than we have given, so this is not a reflection of the will to do it. I think the dates are governed by the physical capability of the state of the art in designing and constructing sewage treatment plants, or waste treatment plants.

Are there any other comments or questions?

Mr. Lyon?

MR. LYON: I would like to add one point to this, Mr. Chairman.

I hope that your agency will bring to the attention of the Congress -- I know the Congress already in a sense recognized this in the Federal Act -- the kind of effort that we are talking about here, not only on Lake Erie, but throughout the Nation in implementing all these plans which require resources in the engineering field, through regulatory agencies, consulting firms, Federal agencies, contractors, and so forth. I frankly question whether they are really available, and I would think that it is really important for Congress to consider this problem.

I think the intent on the part of everybody here is to try to get this done, and I don't question but that we can meet these deadlines. However, when you look at the total nationwide picture you have a major manpower problem.

MR. STEIN: I agree with you, except, you know, when you are asking our agency to bring this to the attention of the Congress, I would like to quote the former head of the Michigan program and an old friend of a lot of us here, a grand old man in the Mississippi, Milton P. Adams. When a question like this came up several years ago, he said, "In Michigan we can do that ourselves. We have two Senators and

17 Congressmen." So I don't know. I don't think the States represented here are without representation in the Congress.

You know, when you talk about the Congress, just add up the representatives you have in the Congress here from the five States and see what proportion of the Congress that is. Maybe you can be more effective than we, or at least as effective.

Are there any other comments or questions?

(No response.)

MR. STEIN: If not, I would like to thank you all for coming and staying with us.

Before we stand recessed, I know several of the members of the panel may have further questions to ask, and I would like to ask any of the conferees of the States who want to stay with this, to stay and help answer the questions, if we can.

With that, thank you again for coming.

We stand adjourned.

(Whereupon, at 3:15 p.m., the conference was adjourned.)

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